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TRANSACTIONS

OF THE

INDIANA

Horticultural Society.

1879.

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Transactions of the Indiana Horticultural Society for 1879, being the proceedings of the nineteenth annual session held at Dublin, Wayne County, December 16, 17 and 18, 1879.

A CATALOGUE

OF THE

BIRDS OF INDIANA,

WITH

KEYS AND DESCRIPTIONS

OF THE

GROUPS OF GREATEST INTEREST TO THE HORTICULTURIST.

BY

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Lecture given by
D. Brayton Dec. 17, 1879
at an evening meeting
of the Society.

BIRDS OF INDIANA.

PREPARATORY LETTER TO THE SECRETARY.

INDIANAPOLIS, IND., January 23, 1880.

Mr. W. H. Ragan:

DEAR SIR—In the letter of Mr. Sylvester Johnson, President of the Indiana Horticultural Society, submitting the transactions and proceedings of the Sixteenth Annual Session to the Governor of the State, occurs the following paragraph on the relations of birds, trees and insects to each other and to the horticulturist:

"An abundant supply of timber, especially of evergreens, furnishing, as it does, the natural home and breeding places of many of our feathered friends, would of itself greatly increase and encourage this source of relief to the horticulturist, while many of our worst insect enemies have been driven, by the destruction of their natural forest homes, to take refuge in our orchards. But the birds must be encouraged and protected, while insects, as a rule, must be destroyed. They should not, however, be slayed indiscriminately, as many of our best friends are amongst the tiny creatures of the insect world, while there are a very few exceptions to the general friendly character of the feathered tribes. These facts, therefore, bring us to a consideration of the importance of a knowledge of the kindred sciences of ornithology and entomology, which it has been the aim of this Society at all times to encourage and foster as of vital importance to the horticulturist, and to which we would now call your attention as subjects worthy of legal attention."

The above sets the case in its true light, and when requested to prepare a paper on the birds of the State, to take the place of the somewhat rambling notes on the collection of Indiana songsters that I exhibited at the Dublin meeting of the Association, I thought it best to give this paper some substantial form, so that it might, at least, serve as a basis for future work, and also a practical hand-book, a key to the birds of the State, so arranged that any person of ordinary intelligence may find the names and brief descriptions of the more common species.

This view met with the hearty approval and encouragement of the President and Secretary, and while the keys and descriptions of the higher groups and the brief diognosis of the species given, render this part of the proceedings somewhat bulky, it is not out of proportion to the subject discussed. Indiana has over three hundred birds, either resident or transient. Of these, keys and specific descriptions are supplied for nearly two-thirds. The diognosis of the species of swimming and wading birds is not inserted, as these are not of such immediate interest to the class in whose hands this report will fall. Lists of these groups are, however, appended. A future worker may record and describe them. Little has been said

as to the "Birds Injurious to Agriculture." Such useless lists disfigure too many agricultural and horticultural reports. The fact is we do not know enough regarding the food and habits of individual species to determine what birds, if any, may be ruthlessly destroyed, and probably all legislation as to birds should be *protective*. To discriminate in favor of some species is to attempt to right the balance of nature's forces. Not until such workers as Gentry, of Philadelphia, and Prof. Forbes, of Bloomington, Ill., have pronounced upon the contents of the stomachs of our species at large will we have any basis for thorough legislation.

In the preparation of this list I have made free use of Dr. D. S. Jordan's "Manual of the Vertebrates of the Northern United States." This little book is the *vade mecum* of the student of our fishes, reptiles, birds and mammals, and its arrangement and verbiage, as reduced from Dr. Coues' "Key to North American Birds," has been freely followed. Dr. Coues' "Birds of the Northwest," and "Birds of the Colorado Valley" have furnished many apt quotations in his charming and often racy style, which I have inserted because of their intrinsic value, and because they are at present buried in generally inaccessible government reports. Thoreau and Burroughs, the well-known poet-naturalists, have furnished their happy thoughts. and even the grave Emersonian muse has been solicited, as well as the professional poets, for I deem it well that we look to the *bird-thought*, and not to his claw and stomach alone.

To my friend and former pupil in Natural History, and my after teacher in Ornithology, Mr. E. W. Nelson, U. S. A., St. Michaels, Alaska, I am under especial obligations for the notes in his list of "Birds of North-eastern Illinois (Bulletin of the Essex Institute), which Dr. Coues pithily characterizes as "a thoroughly good list, annotated of three hundred and sixteen species and several varieties." The birds about Chicago are essentially those of North-western Indiana. For the South-eastern part of the State, we have F. W. Langdon's List of the "Birds of the Vicinity of Cincinnati." I have supplied a few notes for the central region of the State, while the south-west corner of the State has furnished no local list, although such an one would doubtless add several species not included here.

Finally, as an apology for errors and omissions that may be in this list, to the naturalist I would say that it has been prepared on only two weeks' notice, and that while the writer has been daily engaged in professional duties.

Very respectfully submitted,

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CLASS AVES

(*THE BIRDS.*)

Birds are warm-blooded, air-breathing vertebrates, with a covering of feathers; a complete double circulation; the two front limbs (wings) adapted for flying or swimming, the two back limbs (legs) adapted for walking or swimming; respiration by lungs, which are connected with air cavities in various parts of the body. Birds are born from eggs, which are fertilized within the body, and hatched externally, either by incubation or heat of the sun; the shell is limy, hard and brittle.

More might be said, but the obvious mark is this: *Birds are the only animals which have feathers.*

The classification of birds is unsettled. Existing birds are so closely related they might properly be placed in one order, called by Professor Gill *Eurhipidura.* Professor Huxley unites all birds having (usually) the power of flight and a vertical ridge or keel on the breast-bone in one order, the *Carinatæ* (birds with a keeled sternum); the birds having a smooth or raft-like breast-bone, as the ostrich, rhea, emu, cassowary, the small *apteryx* of New Zealand, and those "giants of featherdom," the huge species of diornis, are placed by the same author in order *Ratitæ.* The extinct *Archeopteryx*, found fossil in the lithographic slates of Solenhofen, Bavaria—a reptile-like bird, having teeth, claws on its wings, and a lizard-like tail longer than the body, forms a third natural order, the *Saururœ* (lizard-like birds).

The term "order," as generally used in Ornithology, is applied to nearly a score of variously related groups of birds and does not imply such fundamental differences of structure as those pointed out above, nor, indeed, such differences as exist between the "orders" of reptiles and fishes.

For convenience in identification, we insert here an artificial key to the

ORDERS OF INDIANA BIRDS.

*Toes 3; two in front, one back. (Three-toed Woodpeckers). . *Picariæ, B.*

**Toes 3; all in front. (Snipe, plover.) . . . . . *Limicolæ, F.*

***Toes 4; two in front, two behind.

Bill cered and hooked. (Parrots.) . . . . *Psittaci, B. B.*

Bill lengthened; no cere or hook. (Woodpeckers.) . *Picariæ, B.*

**** Toes 4; three in front, one behind.

I. Toes not webbed at all.

a. Hind toe on a level with front toes.

b. Nose holes under a soft, tumid membrane; head small; tarsus reticulate behind. (Pigeons and doves.) . . . . . *Columbæ D.*

bb. Bill hooked and cered; claws sharp and strong. (Owls, hawks, eagles and vultures.) . . . . . *Raptores, C.*

bbb. Bill slender; smallest of all birds. (Humming-birds.) . *Picariæ, B.*

bbbb. Claw of hind toe as long as claw of middle toe; wing coverts few, in two rows. (Mostly small birds.) . . . . . *Paseres, A.*

aa. Hind toe above the others, and usually shorter.

c. Mouth wide and deep, reaching below the eyes. (Whippoorwill and night-hawks.) . . . . . *Picariæ, B.*

cc. Bill lengthened, mouth not wide and deep.

d. First wing feather notched, or else about as long as second. *Limicolæ, F.*

dd. First wing feather not notched, much shorter than second. (Cranes and rails.) . . . . . *Alectorides, H.*

II. Outer and middle toe grown together for half their length. (Kingfisher.) *Picariæ, B.*

III. Toes joined at the base only by evident movable webbing. (Some falcons, whippoorwills, and doves may be found here.)

e. Hind toe on a level with the rest, and the leg (tibiæ) naked below. (Herons and storks.) . . . . . *Herodiones, G.*

ee. Hind toe not level with the rest, and usually the shortest; bill stout, nostrils scaled or feathered. (Turkeys, grouse, and partridge.) *Gallinæ, E.*

IV. Toes lobate, bordered on the sides by plain or scalloped membranes.

f. Tail rudimentary; set far back. (Loons and grebes.) *Pygopodes, L.*

ff. Tail perfect; a horny frontal shield. (Coots and gallinules.) *Alectorides, H.*

fff. Tail developed; forehead without frontal plate. (Phalaropes.) *Limcolæ, F.*

V. Toes palmate; three front toes full-webbed.

g. Bill curved up; legs long. (Avocets). . . . *Limicolæ, F.*

gg. Bill lamellate, flattish mostly, and the tip with a decurved nail. (Ducks, geese, and swans). . . . . *Lamellirostres, I.*

ggg. Wings long and pointed; tail well developed. (Gulls and terns.) *Longipennes, K.*

VI. Toes totipalmate; all four full-webbed. (Pelicans and cormorants.) *Steganopodes, J.*

ORDER A. PASSERES.

(*Passerine Birds.*)

These comprise the great majority of all birds. They represent the "highest grade of development and the most complex organization of the class; their high physical irritability is coördinate with the rapidity of their respiration and circulation; they consume the most oxygen, and live the fastest of all birds."

The toes are 4; fitted for perching; the claw of back toe is as long or longer than claw of middle toe; joints of toes are respectively 2, 3, 4, 5, from the first to the fourth; wing coverts few, chiefly in two series. Tail feathers 12; primaries 9 or 10. Musical organs well developed. Young reared in the nest and fed by the parents.

FAMILIES OF PASSERES.

I. OSCINES. Each side of tarsus (long bone above toes) covered with a plate, meeting its fellow in a sharp ridge behind; musical apparatus highly developed. (All passeres except fly-catchers.)

*Primaries 10; the first short or spurious.

†Scales of tarsus forming a continuous covering (*i. e.*, booted); corners of mouth with bristles.

a. Middle toe free from inner toe; medium-sized birds, not over six inches; wings rather short; no blue. (Thrushes, robins, cat-birds.) *Turdiæ, I.*

aa. Same as above, only with long, pointed wings, and birds with blue. (Blue birds.) . . . . . *Saxicolidæ II.*

aaa. Middle and inner toes connected at base; small, not five inches long. (Ringlets.) . . . . . *Sylviidæ, III.*

†† Tarsus scutellate in front (that is, with a regular and vertical series of broad-plates in front).

b. Nostrils concealed by tufts of bristly feathers.

c. First primary more than half the length of second; large birds over eight inches long. (Crows and jays.) . . . *Corvidæ, XVIII.*

cc. First primary not more than half the length of second; length less than eight inches; bill as long as head; wings pointed, longer than tail. (Nuthatches.) . . . . . *Sittidæ, V.*

ccc. Same as *cc.*, only with bill shorter than head; wings about = tail. (Titmice.) . . . . . *Paridæ, IV.*

bb. Nostrils exposed; not overhung with feathers.

d. Bill notched near tip; often hooked.

e. Tail longer than wings; general color gray, or ashy-brown.

f. Bill stout, compressed, notched, toothed and hooked at tip; large. length 8 to 9. (Shrikes, butcher birds.) . . *Laniidæ, XV.*

ff. Bill more slender, not notched or hooked; length 8 to 10. (Thrushes.) *Turdidæ, I.*

fff. Bill very slender; length 4 to 5. (Gnat-catchers.) *Sylviidæ, III,*

ee. Tail shorter than wings; color olivaceous; bill stout, notched and hooked; length 4½ to 6½. (Vireos, greenlets.) . *Vireonidæ, XIV.*

dd. Bill not at all notched.

g. Rictus with bristles; quills not barred; tail longer than wings; length, 9 or more. (Brown thrush.) . . . . . *Turdidæ, I.*

gg. No rictal bristles; wings and tail equal and barred; small brown birds. (Wrens.) . . . . . *Troglodytidæ, VII.*

ggg. No rictal bristles; tail feathers stiff and sharp, not barred; bill long, decurved; length 5 to 6. (Creeper.) . . . *Certhiidæ, VI.*

** Primaries 9; the first about as long as second.

‡ Bill flat, triangular; as wide at base as long; mouth wide and deep for catching insects; wings long and pointed. (Swallows.) . . *Hirundinidæ, XII.*

‡‡ Bill stout and conic; plumage brilliant, chiefly red in male, yellow in female. (Tanagers.) . . . . . *Tangaridæ, XI.*

‡‡‡ Bill conic; stout at base; cutting edges of the bill with an angle near the base (*i. e.*, "corners of the mouth drawn downward").

h. Bill shorter than the head; usually with a notch at tip. (Comprises ⅛ of all our birds. Sparrows.) . . . . . *Fringillidæ, XVI.*

hh. Bill conic, about as long as head (except in the bobolink and cowbird); no notch at tip, or bristles at rictus. (Orioles and blackbirds.)
Icteridæ, XVII.

‡‡‡‡Bill not as above; cutting edges straight, or gently curved.

i. Head crested; tail tipped with yellow; secondaries with red horny tips. (Waxwings.) . . . . . *Ampelidæ, XIII.*

ii. Nostrils bristly feathered; tarsus with scales behind; hind claw long and straight. (Horned lark.) . . . . . *Alaudidæ, VIII.*

iii. No crest; nostrils exposed.

j. Hind claw twice as long as middle claw; hind toe longer than middle toe and claw. (Wagtails.) . . . . . *Motacillidæ, IX.*

jj. Hind claw not twice as long as middle claw.

k. Bill stout, notched, abruptly hooked at tip; general color olivaceous. (Greenlets, vireos.) . . . . . *Vireonidæ, XVI.*

kk. Bill various, notched or not, little if at all, hooked; colors often brilliant; small birds. (Warblers.) . . . . *Sylvicolidæ, X.*

II. CLAMATORES. Outside of tarsus covered with a series of plates lapping entirely around in front and behind to meet in a groove on the inner side; bill broad, flattened and hooked; rictal bristles numerous; primaries 10. (Flycatchers.) . . . . . *Tyrannidæ, XIX.*

FAMILY I. TURDIDÆ.

(*The Thrushes.*)

A large family of 200 or more species, of which we have eight. Most are remarkable songsters. The food is insects and soft fruits.

Primaries 10, the first short or spurious; bill long, usually with a little notch near the tip; the rictus with bristles well developed in most of our species; tarsus in typical species "booted," *i. e.*, the plates on the bone above the toes are grown into a continuous envelope.

There are three sub-families, of which Indiana has two—*Turdinæ*, the Typical Thrushes, with the tarsus booted, first primary spurious, and wings longer than tail. All sing well, and some of them are vocalists of the first order.

Their nests are rather rude—the robin's is plastered with mud. They lay four to six bluish or greenish eggs, either plain or speckled. The second sub-family *Mimina*, mocking thrushes, have the tarsas scutellate, the first primary about an inch long, and the tail longer than the wings. They are plainly dressed birds, but have a brilliant and varied song. All are American.

TYPICAL THRUSHES. (*Turdinæ.*)

HYLOCICHLA. Baird. *Wood Thrushes.*

1. H. MUSTELINA (Gm.) Bd. *Wood thrush.* Cinnamon brown, brighrest on the head, becoming olive on the rump; breast with large dusky spots; our largest and best known thrush. L. 8; W. 4½. Comes to Central Indiana the last of April; nests the middle of May, and leaves in early September.

2. H. PALLASI (Cab.) Bd. *Hermit Thrush.* This thrush is olive brown above, becoming rufuous on the rump and tail; breast with dusky spots. L. 7; W. 3½. An abundant spring and fall migrant. April 1 to May 10, and September 20th to even November.

With Swainson's thrush and Alice's thrush, it frequents the shrubbery in vacant lots in Chicago during both migrations. (Nelson.) But the English sparrows were not very abundant at Chicago at that time. I have seen this thrush in the parks of Indianapolis during the spring migration.

John Burroughs (Birds and Poets, page 46) speaks of the wood thrush and hermit thrush as the most melodious of our songsters; "birds whose strains, more than any others, express harmony and serenity."

3. H. SWAINSONI (Cab.) Bd. *Olive-Backed Thrush.* Uniform olive above; large dusky olive spots on breast and throat; breast and sides of head buffy-tinted; a plain buffy ring about the eye. L. 7¼; W. 4. An abundant migrant; a rare summer resident in the north of the State.

4. H. ALICIÆ. Bd. *Alice Thrush.* (Alice Kennicot.) Like Swainsoni, only without ring or buffy cheeks—probably a variety.

Of its song Nelson says: "I have rarely heard this species sing except during damp, gloomy days in spring when trees and bushes were dripping with a fine misty rain. On such occasions I have been greeted by the clear metallic notes of this thrush rising clear and strong, filling the air with a sweet, indescribable melody, and then dying away in measured cadence until the last notes are scarcely distinguishable. As the first strain ends, the song is reëchoed by hidden musicians on every hand until every tree seemed to give forth the wierd music."

5. H. FUSCESCENS, (Steph.) Bd. *Tommy Thrush. Wilson's Thrush. Veery.* Uniform tawny above; breast and throat washed with pinkish or brownish yellow, and marked with small indistinct brownish spots. L. 7½; W. 5½; T. 4½.

TURDUS LINNÆUS. Robins.

6. TURDUS MIGRATORIUS L. ROBIN. *American Redbreast.* Olive gray; head and tail blackish; throat white with black streaks; under parts chestnut brown. L. 9¾; W. 5½; T. 5½. This common summer resident arrives the last of February in large flocks. They commence their rough-and-tumble, mud-lined nests the middle of April, and some continue nesting all summer. They leave in October and early November; some few may stay through the winter in the southern part of the State.

MOCKING THRUSHES. (*Mimin*æ.)

HARPORHYNCHUS. Cabanis. *Mocking Thrushes.*

7. H. RUFUS (L.) Cab. *Brown Thrush, Brown Thrasher, Sandy Mocking Bird.* Cinnamon red above; spotted thickly below; bill long and nearly straight. A common summer resident; comes in April, nests in low trees, or at the base of saplings and bushes in the middle of May, and is off in September. A brilliant tree-top performer in early spring.

MIMUS. Boie. *Mocking Birds.*

8. M. POLYGLOTTUS, (L.) Boie. *Mocking Bird.* Ashy brown above; wings blackish, with white wing bars; tail dark, outer feathers white. As with other

thrushes the sexes are similar. L. 9½; W. 4½; T. 5. Often the common shrike is mistaken for this bird; the colors and flight are quite similar, but the short-hooked bill of the butcher bird is distinctive at a glance.

A very rare summer resident in Indiana. Dr. Hoy records six nests from the vicinity of Racine, Wisconsin. The bird is a world-renowned songster—the nightingale of America. It is a common bird in towns South, as free and familiar as the robin is with us, and in a state of freedom has a song of its own infinitely rich and various, and even more notable than its wonderful power of mimicry; "when its love passion is upon it the serious and even grand side of its character comes out."

Both sides of its nature—the garrulous buffoon and serious lover—are portrayed in Wilde's exquisite sonnet:

TO THE MOCKING-BIRD.

Winged mimic of the woods! thou motley fool,
  Who shall thy gay buffoonery describe?
Thine ever-ready notes of ridicule
  Pursue thy fellows still with jest and gibe.
Wit—sophist—songster—Garrick of thy tribe,
  Thou sportive satirist of Nature's school,
To thee the palm of scoffing we ascribe,
  Arch scoffer, and mad Abbot of Misrule!
For such thou art by day—but all night long
  Thou pour'st a soft, sweet, pensive, solemn strain,
As if thou did'st in this, thy moonlight song,
  Like to the melancholy Jacques, complain,
Musing on falsehood, violence and wrong,
  And sighing for thy motley coat again.

Mr. Edward Palmer, of Indianapolis, reports a mocking-bird nesting near the city in 1876.

GALEOSCOPTES. Cabanis. *Cat-birds.*

9. G. CAROLINENSIS. (L.) Cab. *Cat-bird.* Dark slate; crown and tail black; crissum brownish chestnut. L. 8¾; W. 3¾; T. 4. Well-known summer resident. Nests on the main streets of Indianapolis. Comes April last, and leaves in September.

FAMILY II. SAXICOLIDÆ.

(*The Bluebirds.*)

Like the thrushes, only with a longer and more pointed wing, reaching, when folded, beyond the middle of the short tail. Tarsus "booted;" first primary spurious; 12 genera and a hundred species, mostly old-world birds. 3 in U. S.; ours, and two Western species.

SIALIA. Swainson. *Bluebirds.*

10. S. SIALIS (L.) *Common bluebird.* Bright blue above. "The bluebird carries the sky on his back." (Thoreau.) The throat and breast reddish brown; female

duller; young spotted. L. 6¾; W. 4; T. 3. It is useless to say anything of this well-known bird. The children, even, can tell you all about it.

His first note in early spring, as he goes "shifting his light load of song from post to post along the cheerless fence," is as positive and welcome to the ear as the first dandelion to the eye. Some stay all winter, if mild, in parties of five to ten. They pair as early as February, and bring forth two or three broods during the spring and summer—the male taking care of the first brood while the female is busy with the second. Bluebirds nest, unlike the thrushes, in holes, and lay unicolored eggs; they are readily semi-domesticated, like the swallows, house wren, and house sparrow, living in boxes and gourds. A pair in my yard drove the house sparrows from a box, and were themselves dispossessed by the purple martin. Their melodious warbling song, sweet and charming, is inseparable from the spring-time, "Like the sunshine of the days when the year is young, and Nature seems to pause to gather strength for her intended triumphs, this melting music of the bluebird is full of delicious languor and dremy voluptuousness, suggesting the possibilities of all things and expressing the realities of none. It is a promise and a pledge of the future, like the unconscious yearning of a maiden for what she knows not." . . . . . *Dr. Coues.*

FAMILY III. SYLVIIDÆ.

(*The Kinglets.*)

Primaries 10, the first short, scarcely spurious; bill curved, notched, decurved at tip. Rictal bristles evident; nostrils oval, overhung. A large family of 600 species in the Old World, where they take the place of our warblers. The European nightingale belongs here. North America has three kinglets (genus *Regulus*), known by the booted tarsus and wings longer than tail; there are three gnat-catchers (genus *Polioptila*), known by the scutellate tarsus, and tail longer than wings.

REGULUS. Cuvier. *Kinglets.*

11. R. SATRAPA. Licht. *Golden-crowned Kinglet.* Olivaceous; crown yellow, black-bordered, and with orange red in the center in male. Abundant, migrant, going over Indiana all of April, and back again through October.

12. R. CALENDULA. Licht. *Ruby-crowned Kinglet.* This species is much like the other; crown with a scarlet patch (a little lamp; hence *calendula*) in both sexes. A little scamp, everywhere in woods while migrating. It is several days behind the golden-crown, and as many days in advance of it in the fall. Both species are in length about 4; W 2¼; T. 1¾. The golden-crown is a winter resident in Southern Indiana. Both have a sweet little song, besides a constant squeak when bug-hunting. Both are common little birds, but so small and so little with us that few Indiana people have ever seen them.

POLIOPTILÆ. Sclater. *Gnatcatchers.*

13. P. CÆRULÆ. (L.) Sclater. *Blue-gray Gnatcatcher.* Clear ashy blue, whitish below; male with sides of head and crown black, outer tail feathers white. T. 4⅜; W. 2; T. 2¼. A sprightly bird with a squeaky voice, "like a mouse with the toothache," but a fine singer, for all that. A common migrant in May and September; also, nesting in our heavy timber. Shot usually from the tops of tall dead trees. The nest is a beauty, only, if at all, excelled by the humming-bird's. It is a truncated cone, large for the bird, felted inside with spider's web and thistle down, a deep and purse-like cavity contracted at top, and containing usually five half-inch eggs, white, with lilac and red speckles and dashes. Like the humming-bird's, the outer walls are done with stucco-work of lichens, which perfect its beauty, and give it the look of a natural excrescence on the limb.

FAMILY IV. PARIDÆ.

(*The Titmice.*)

Small birds, under 7 inches; restless, noisy, much like jays: scarcely migratory. Species 75 or more, in both continents. About 10 species in N. A., 3 in Indiana. At once known by the 10 primaries, the first much shorter than second; wings rounded, not longer than the rounded tail; tarsus scutellate, not longer than middle toe and claw. Toes soldered at base, palm-like beneath. Genus *Lophopanes* is crested, chiefly lead-gray, paler below. Genus *Parus* is not crested; crown, chin and throat black or brown.

LOPHOPHANES. Kaup. *Tufted Titmice.*

14. L. BICOLOR, (L.) Bonaparte. *Tufted Titmouse.* Forehead alone black; whitish below; sides reddish. L. 6¼; W. 3¼; T. 3¼. In every southern woods; remarkable for its loud, ringing notes. Rare in northern Indiana; only a few straggling parties rambling north from the wooded central and southern regions, where it is one of the characteristic species.

PARUS. Linnæus. *Chickadees.*

15. P. ATRICAPILLUS, (L.) *Titmouse. Black-Capped Chickadee.* Grayish ash; wings and tail plain, with whitish edgings; crown, neck, nape, chin and throat black. L. 5; W. 2½; T. 2½. Resident north, but more abundant in winter and during the migrations, when it may reach even to the south of the State. The variety *carolinensis*, Carolina chickadee, is a rare summer visitant in the pine woods of Lake county, but a resident of central and southern Indiana.

Roaming in flocks of a dozen or so, with the tufted titmouse, they form a notable feature of our avian-fauna.

They are hardy, active, social birds—in winter no less than in summer "merrily singing their chick-a-dee-dee," "defiers of both frost and heat," and, continues Burroughs, "diligent searchers after truth in the shape of eggs and larvæ of insects." Emerson's poem, "The Titmouse," shows the points of this bird both

as hero and philosopher, and must be acceptable to poet and naturalist, as also to the horticulturist, whose business brings him into such immediate relations with the birds, and so I introduce a part of it here:

"'Up, and away for life! be fleet!
The frost-king ties my fumbling feet,
Sings in my ears, my hands are stones,
Curdles the blood to the marble bones,
Tugs at the heart-strings, numbs the sense,
And hems in life with narrowing fence.
Well in this broad bed lie and sleep,
The punctual stars will vigil keep;
Embalmed by purifying cold,
The winds shall sing their dead-march old;
The snow is no ignoble shroud,
The moon thy mourner, and the cloud.

"'Softly—but this way fate was pointing,
'Twas coming fast to such anointing,
When piped a tiny voice hard by,
Gay and polite, a cheerful cry,
Chick-chickadeedee! saucy note,
Out of sound heart and merry throat,
As if it said, 'Good day, good sir,
Fine afternoon, old passenger!
Happy to meet you in these places,
Where January brings few faces.'

"'Here was this atom in full breath,
Hurling defiance at vast death;
This scrap of valor, just for play,
Fronts the north wind in waistcoat gray,
As if to shame my weak behavior;
I greeted loud my little savior,
'You pet! what dost here? and what for?
At this pinch, wee San Salvador!
What fire burns in that little chest,
So frolic, stout and self-possessed?'
Henceforth I wear no stripe but thine;
Ashes and jet all hues outshine.
Why are not diamonds black and gray?
And I affirm the spacious north
Exists to draw thy virtues forth.
I think no virtue goes with size;
The reason of all cowardice
Is, that men are overgrown,
And, to be valiant, must come down
To the titmouse dimension.

"'I think old Cæsar must have heard
In Northern Gaul my dauntless bird,
And, echoed in some frosty wold,
Borrowed thy battle numbers bold.
And I will write our annals new,
And thank thee for a better clew.
I, who dreamed not when I came here
To find the antidote of fear,
Now hear thee say in Roman key,
Pæan! veni, vidi, vici."

FAMILY V.—SITTIDÆ.

(*The Nuthatches.*)

Ten primaries; the first spurious. Wings long and pointed, much longer than the broad soft tail. Bill notched, slender, straight, about head. Scutellate tarsus, shorter than middle toe and claw. Body depressed; plumage lax. Active, nimble little birds, running up and down trees, hanging in every way, the head down as often as up. Species twenty-five to thirty, in most parts of the world.

SITTA. Linn. *Nuthatches.*

16. S. CAROLINENSIS. *White-Bellied Nuthatch.* "*Sap Sucker.*" (Not the "sap-sucking woodpecker.") Ashy blue above, white below; crissum rusty brown; crown and nape black in male; L. 5½; W. 3½; T. 2. A well-known resident.

17. S. CANADENSIS, L. *Red-Bellied Nuthatch.* Smaller; rusty brown below. Crown in male glossy black; in female, blue; in both with white and black stripes at the border. A rare summer resident north, and irregular winter resident south. I have seen them often about Indianapolis in the fall, but rarely in the spring. More northerly than the Carolina nuthatch; a pretty bird.

FAMILY VI. CERTHIIDÆ.

First primary short. Bill slender, long as head, decurved; no notch or bristles. Claws all long and curved. Wings about equal tail. Tail-feathers almost as stiff and sharp as the woodpecker's, and used in climbing, the same way. Habits like nuthatches. Voice small and fine.

CERTHIA. Linn. *Brown Creepers.*

18. C. FAMILIARIS. Linn. *Brown Creeper.* Dark brown; much barred and streaked; rump clear tawny. L. 5½; W. 2¾; T. 2¾. A curious little bird, known at once by its tail.

A winter resident throughout the State. Comes from the north October 1, and stays until May. Runs spirally around the tree from the ground up. Also "hunts spiders on the rough brick walls of houses." (E. W. Nelson, Chicago.)

FAMILY VII. TROGLODYTIDÆ.

(*The Wrens.*)

Primaries 10; the first short. Wings rounded = tail. Bill usually slender, long, unnotched. Nostrils oval, without bristles, overhung by a scale-like membrane.

Ours are all little brown birds, usually with the quills barred. One hundred or more, chiefly of Tropical America.

"Our species are sprightly, fearless and impudent little creatures, apt to show bad temper when they fancy themselves aggrieved by cats or by people, or anything else that is big or unpleasant to them; they quarrel a good deal, and are particularly spiteful towards martins and swallows, whose homes they often invade and occupy. Their song is bright and hearty, and they are fond of their own music; when disturbed at it they make a great ado with noisy scolding. Part of them live in reedy swamps and marshes, where they hang astonishingly big globular nests with a little hole on one side, on tufts of rushes, and lay six or eight dark colored eggs; the others nest anywhere." (Dr. Cones.) All are insect eaters, and most of them migratory.

THRYOTHORUS. Vieillot. *Mocking Wrens.*

19. T. LUDOVICIANUS. Bonap. *Carolina Wren.* Clear reddish brown, brightest on rump; tawny below. L. 6; W. 2½; T. 2⅓. A rare summer visitor north, but in Central and Southern Indiana its remarkable song is heard throughout the year. It is much like, but far sweeter than the song of the cardinal redbird. Nests anywhere; in sheds, stumps, culverts, sparrow-boxes, etc., and rears two or three broods in a season. Eggs usually five. One of the sweetest wild birds.

20. T. BEWICKII, (Avd.) Bon. *Bemick's Wren.* Grayish brown; two middle tail feathers barred; L. 6; tail longer than wings. A rare summer resident. A pair reared young in an arbor roof in a vacant lot in Chicago, 1876. (Nelson.) Has been seen in Marion county. Has been taken at Brookville, Ind., by Mr. E. R. Quick. Its habits are essentially the same as the preceding. I saw it abundantly in Kentucky. It is indifferent to the presence of man.

TROGLODYTES. Vieillot. *Wrens.*

21. T. ÆDON. Vieill. *House Wren.* Brown; bright behind; rusty below; everywhere waved with darker brown; tail about=wings; L. 5; W. 2; T. 2; common; very variable. Comes in May and leaves in September, where found. Some towns it does not favor with its presence and song. Few in Indianapolis, but common in the suburbs. It is not a "house wren" entirely; it is found nesting in fields, thickets, and even forests, as well as in coat-sleeves, pockets, pump holes, skull of an ox, nest of another bird, boxes and gourds put up for bluebirds and martins; in a box in Dr. Kennicott's chaise, from which they were driven as often as he made a visit, while the old hat Audubon drew has become, as Dr. Cones remarks, historic.

They often use from a peck to a bushel of sticks and trash in reducing the aperture by which they enter their nest to the proper size. Inside this pile of stuff is a compact, cup-like nest built of soft material. They are sweet singers, and right at our door too, and should always be encouraged.

ANORTHURA. Rennie. *Winter Wrens.*

22. A. TROGLODYTES, (L.) Cones. *Winter Wren.* Variety *hyemalis* is resident from November to March south, and is reported by Nelson as late as May 1 about Chicago. This is our least wren; L. 4; W. 1⅔; T. 2. It is deep brown,

waved with dusky; tail shorter than wings; the belly, wings and tail are strongly barred. It is a shy wren, a sweet singer, and is oftener heard than seen.

CISTOTHORUS. Cabonis. *Marsh Wrens.*

23. C. STELLARIS. Cabonis. *Short-billed Marsh Wren.* Dark brown; head and back darker; entire upper parts with white streaks; L. 4½. Summer resident in suitable places. Probably regarded as rare because of their shy ways and inaccessible habitat.

24. C. PALUSTRIS. (Wilson) Baird. *Long-Billed Marsh Wren.* Bill slender, as long as head; a white superciliary line; general color clear brown, with a black patch containing white streaks; crown blackish; rump brown; L. 5. Observed by Mr. Langdon near Cincinnati in spring. The nests are found in the reedy swamps about the Kankakee river marshes in great numbers. They are placed in the midst of tall rushes, or clumps of wild rice, and are firmly attached about two feet above the surface to several surrounding stalks. "While the female is incubating, the male is constantly employed upon the construction of several unfinished nests, until often a pair may boast the possession of a dozen unoccupied tenements." (*Nelson.*)

FAMILY VIII.—ALAUDIDÆ.

(*The Larks.*)

Tarsus scutellate in front and behind (a character singular among oscine birds). Bill short; nostrils hidden by tufts of feathers. First primary short or wanting. Hind claw very long and nearly straight. Inner secondaries elongated. A group of one hundred species, mostly Old World birds, among them the famous European sky-lark.

EREMOPHILA. Boie. *Horned Larks.*

25. E. ALPESTRIS. Boie. *Shore Lark.* Pinkish brown, thickly streaked; a little tuft of black feathers, like the "horns" of owls, over each ear; a crescent on breast and strip under eye black; white below; chin, throat, and line over eye more or less yellow; female with less black; winter birds grayish, markings more obscure; L. 7¼; W. 4½; T. 3.

There are two varieties of this species in the northern part of the State. Variety *leucoloema*, is permanently resident, bringing forth fully fledged young in May; the male takes care of these, and the female resumes her work on a second set of eggs. When the second brood can follow, the double family wanders at its will through fall and winter, until the breeding season, when they disband. This variety is the larger, and has no yellow on the head, except a slight throat tinge; the black markings are smaller than in typical *alpestris;* this latter arrives in October with the Lapland longspurs, and in April goes back with them to its northern breeding grounds.

In the winter of 1878–9, the horned larks appeared in flocks of two hundred or more, with the great snow of January; they were accompanied with a few snow birds (P. nivalis.) I have found the young in early May; they frequent open fields and roads. The horned lark is a pleasant singer, and is far from being either shy or timid.

FAMILY IX. MOTACILLIDÆ.

(*Wagtails.*)

Primaries 9; first about=second; inner secondaries enlarged, the longest about = to the primaries in closed wing. Bill shorter than head, very slender, straight, acute, notched at tip. Feet large, fitted for walking, hind claw long; nostrils exposed. A group of about 100 Old World species. Most of them are terrestrial. They have a habit of moving the tail up and down, as if "balancing themselves on unsteady footing," hence are called "Wagtails."

ANTHUS. Beehstein. *Titlarks.*

26. A. LUDOUICIANUS. (Gm.) Licht. *Brown Lark, Titlark, Pipit.* Dark brown, slightly streaked; superciliary line and under parts buffy; breast and sides streaked; outer tail feathers more or less white.

Migrant in November and March about Cincinnati. (*Langdon.*) Arrives in Northern Indiana about May 15, the breeding plumage just forming; it goes on north in a few days, and returns in October. (*Nelson.*)

The Missouri skylark, a bird much like in habits, it is said, to the European skylark, is a near relative of our brown lark.

FAMILY X. SYLVICORDÆ.

(*The Warblers.*)

Primaries 9; bill usually slender, notched or not. Commissure not with an angle as in Fringillidæ, nor toothed in the middle as in our *Tanagridæ*. Hind toe not long and straight, as in the two preceding families; the gape not broad and deep, as in swallows.

Our warblers are small birds; most less than six inches and many less than five. The rictus is usually bristled. The colors are usually brilliant and variegated, but the sexes are unlike, and the variations due to age and season are so great the study of the species is often difficult.

The family comprises a hundred or more species, mainly North American. All are insectivorous and migratory. Many are pleasing songsters, but none are remarkably so.

The group is known by negative rather than by positive characters. There are three well marked sub-families, based mainly on characters of the bill.

KEY TO THE GENERA OF WARBLERS.

I. SYLVICOLINÆ. *True Warblers.* These have the bill slender, not hooked, as high as wide at base, usually with short bristles or none. Wings longer than tail, except in *Geothlypis*. Length 6½ or less.

* Tail feathers, some or all of them blotched with white.

†Rictus with evident bristles.

‡Tarsus not shorter than middle toe and claw; entirely black and white, streaked. . . . . *Mniotilla*, 1.

‡‡Tarsus not shorter than middle toe and claw.

a. Hind toe decidedly longer than its claw; bill acute, scarcely notched; bluish, throat and middle of back with yellow. . *Parula*, 2.
Bill very acute, notched, perceptibly decurved, so that the gonys is slightly concave, rump and under parts chiefly yellow. *Perissoglossa*, 6.

aaa. Warblers without above characters. . . . *Dendræca*, 7.

††Rictus without evident bristles.

b. Whole head and neck bright yellow, bill notched, half inch or more long. *Protonotaria*, 3.

bb. Whole head and neck not yellow; bill acute, not notched nor bristled, less than half an inch long. . . . . *Helminthophaga*, 5.

**Tail feathers yellow on inner webs; outer webs dusky; plumage chiefly yellow. . . . . *Dendræca*, 7.

***Tail feathers all unmarked; same color on both webs.

c. Conspicuously streaked below; head plain or with two black stripes; legs long. . . . . *Seiurus*, 8.

cc. Not streaked below.

d. Wings about as long as tail; chiefly yellow below; crown of male black or ashy; legs strong. . . . . *Geothlypis*, 10.

dd. Wings decidedly longer than tail.

e. Bill not notched, half inch or more long; head plain or with four black stripes. . . . . *Helminthophaga*, 4.

ee. Bill less than half an inch long.

f. Bill notched; wings more than 2½; crown plain or with black. *Oporornis*, 9.

ff. Bill not notched or bristled, very acute; wings less than 2½; crown plain or with a bright yellow spot. . . *Helminthophaga*, 5.

ICTERINÆ. *Chats*. Bill rather stout, not notched, hooked nor bristled; tail longer than wings; length, 7 to 8. . . . . *Icteria*, 11.

SETOPHAGINÆ. *Fly-Catching Warblers*. Bill depressed, broader at base than high, notched and somewhat hooked, with strong rictal bristles half the length of bills; wings longer than tail; length 5½ or less.

a. Bill fully twice as long as wide at base; tail feathers unmarked or blotched with white. . . . . *Myiodioctes*, 12.

aa. Bill scarcely twice as long as wide at base; tail marked with orange or yellow. . . . . *Setophaga*, 13.

1. *MNIOTILTA*. Vieillot. *Creeping Warblers*.

27. M. VARIA, (L.) Vieill. *Black and White Creeper*. Entirely black and white, streaked; crown with a broad white stripe; white wing bars; female grayer; L. 5; W. 2¾; T. 2¼. Summer resident south; not uncommon north. A neat bird, with some of the habits of the nuthatch.

2. *PARULA*. Bonaparte. *Blue Yellow-backed Warblers*.

28. P. AMERICANA, (L.) Bon. Clear ashy blue; back with large golden-green patch.; yellow below; belly white; white wing bars; female obscurely marked; L. 4¾. North an abundant migrant, breeding rarely.

3. *PROTONOTARIA.* Baird. *Golden Swamp Warblers.*

29. P. CITREA. (Bodd.) Bd. Front and lower parts brilliant yellow; back, wings, etc., olivaceous; bill long; L. 5½; W. 3; T. 2¼. A rare summer visitant north; much commoner in the Wabash valley. This is one of the most beautiful warblers.

4. *HELMITHERUS.* Rafinesque. *Swamp Warblers.*

30. H. VERMIVOROUS. *Worm-eating Swamp Warbler.* Olive green; head yellowish, with four black stripes; buffy below. Female similar. A very rare visitant north; probably resident south.

5. *HELMINTHOPHAGA.* Cabanis. *Worm Eating Warblers.*

31. H. CHRYSOPTERA. *Blue, Golden-Winged Warbler.* Ashy blue; forehead, crown and wing bars bright yellow; throat and broad stripe through eye black; white below; female duller; L. 5; W. 2½; G. 2¼. A beautiful species; comparatively rare; migrant through the State.

32. H. PINUS. (L.) Bd. *Blue-Winged Yellow Warbler.* Olive yellow; crown and under parts bright yellow; wing bars whitish; loral stripe black; sexes alike; L. 4½; W. 2⅓; *T.* 2. Tail feathers like the above conspicuously blotched with white. A common summer resident in Southeastern Indiana. A handsome bird like a miniature *Protonotaria*.

33. H. CELATA. (Lay.) Bd. *Orange-Crowned Warbler.* Olive green, never ashy on head; orange brown crown patch, concealed more or less; greenish yellow below; female duller; L. 4¾; W. 2¼; T. 2. A common migrant frequenting bushy hillsides and borders of woods. (*Nelson.*)

34. H. PEREGRINA. (Wils.) Cab. *Tennessee Warbler.* Olive green; no crown patch; white or whitish yellow below; L. 4½; W. 2¾; T. 1¾. Common migrant north. I have taken it in Marion county May 15. Nelson notes that like several other species of warblers which frequent the tops of the trees in spring it is found much lower in fall.

35. H. RUFICAPILLA. (Wils.) Bd. *Nashville Warbler.* Olive green, ashy on head and neck; crown patch bright chestnut; bright yellow below; female duller, crown patch obscure. This, like the two preceding species, has no white blotches on the tail feathers. L. 4⅔; W. 2½; T. 2. Migrant; not common near Cincinnati. (*Langdon.*) Very common migrant in Lake county, and also a rare resident. (*Nelson.*) I have taken it in May near Indianapolis.

NOTE.—Besides the above five eastern species there are five western forms of this interesting genus. All build on, or just above, the ground, forming rather coarse and bulky nests. They are not given to worm eating exclusively (as the generic name suggests), but eat insects of various kinds. "Their notes are few, odd and not very musical, pitched in a high key and delivered in a slender, wiry tone." (*Dr. Cones.*)

6. *PERISSOGLOSSA.* Baird. *Fringed-Tongue Warblers.*

36. P. TIGRINA. (Gm.) Bd. *Cape May Warbler.* Olivaceous above with darker streaks; rump and sides of neck bright yellow; yellow below, much streaked with black; crown black or nearly so; ear coverts orange brown; a white wing patch; female duller, with no black or reddish about the head. L. 5¼; W. 2¾; T. 2. A fine warbler removed from the genus Dendroeca, because of the peculiar

structure of the tongue. A very common migrant; in tree tops in spring; on its return voyage found almost anywhere in company with Dendroeca palmarun, whose fall habits and movements it closely resembles.

7. *DENDRŒCA.* Gray. *Wood Warblers.*

This large genus has about thirty little bright-colored warblers, all American, and very abundant in the United States during the migrations. They are difficult to identify, unless in full plumage. Length usually five or six inches. The tail feathers are always blotched with white or yellow; the bill is but moderately pointed, notched and with evident bristles at the rictus. They nest in trees or bushes, with rare exceptions. The eggs are white and spotted. Their generic name signifies a "tree tenant," and the numerous species are conspicuous ornaments of our forest scenes. In the south they pass the winter; some in the West Indies, some in Mexico, and many even in Central and South America. As the advancing sun stirs to life the insect world, they pass across the United States, most of them to British America; their movements, as regular and periodical as the opening of flowers, so that one may almost tell the day of the month by the coming of the successive species; flying, as most warblers do, in the night, feeding in the early morning and evening, resting at noonday, and then pushing on; unless stopped by the busy collector to whom these little sprites so various in color, according to age, sex, and season, are an annual prize. Thousands fall a prey to the mere collector and milliner, or dealer in bird skins; the thoughtful and less greedy naturalist finds ample scope for his time and abilities in studying their habits and hunting their homes, of which too little is even yet known.

The accompanying key to the species is taken from the *vade-mecum* of the amateur student of American birds, Dr. Elliot Coues' Key to North American species. The better way for the student is, however, to satisfy himself first that the bird is a warbler, and then read the successive species until the one is found that tallies with the bird in hand.

DIAGNOSTIC MARKS OF WOOD WARBLERS IN ANY PLUMAGE.

A white spot at base of primaries. . . . . *Cærulescens.*
Wings and tail dusky, edged with yellow. . . . . *Æstiva.*
Wing bars and belly yellow. . . . . *Discolor.*
Wing bars white and tail spots oblique at end of two outer tail feathers only. *Pinus.*
Wing bars brownish; tail spots square at end of two outer feathers only. *Patmarum.*
Wing bars not evident (?); whole under parts yellow; back with no greenish. *Kirtlandi.*
Tail spots at end of nearly all the feathers and no definite yellow anywhere. *Cærulea.*
Tail spots at middle of nearly all the feathers; rump and belly yellow. *Maculosa.*
Rump, sides of breast (usually) and crown with yellow; throat white. *Coronata.*
Throat definitely yellow; belly white; back with no greenish. . *Dominica.*
Throat, breast and sides black, or with black traces; sides of head with diffuse yellow; outer tail feathers white-edged externally. . . . . *Virens.*
With none of the foregoing special marks; then it is . *Striata or Castanea.*
Throat yellow or orange; crown with at least a trace of a yellow or orange spot, and outer tail feathers white-edged externally. . . . *Blackburniæ.*
Wing bars yellow and belly pure white. . . . . *Pennsylvanica.*

37. D. ÆSTIVA. (Gm.) Bd. *Summer Warbler. Golden Warbler.* Chiefly golden yellow; back olive yellow; orange brown streaks on breast and sides; female similar, scarcely streaked. L. 5½; W. 2½; T. 2¼. An abundant summer resident from late April until September.

One of the few birds which refuses to incubate the alien eggs of the cow bunting (Molothrus ater). "It frequently constructs a two-story nest, leaving the bunting's eggs in the cellar; and at least one instance is recorded of the repetition of this laborious and disagreeable work, resulting in a three-story nest, some seven inches deep, with a cow-bird's egg in each of the two lower compartments. She deserved better of fate than that her house should at last be despoiled by a naturalist. This was a summer yellow bird, to whom the price of passing thus into history must have seemed hard." (*Dr. Coues.*) The only species ranging regularly across the continent. The summer warbler is a confiding bird, an agreeable singer, fond of man's presence, nesting in orchards, yards, and even in crowded streets of towns. In Kentucky I have heard it called the flax bird.

38. D. CÆRULESCENS. (L.) Bd. *Black-throated Blue Warbler.* Rich gray blue; a few dusky streaks on back; throat, sides of head, neck and sides of body pure black, otherwise pure white below; female dull olive greenish, obscurely marked, known by the blotch on the primaries. L. 5½; W. 2¾; T. 2¼. An elegantly colored species, not uncommon in woodlands during the spring and fall migrations.

39. D. CORONATA. (L.) Gray. *Myrtle Warbler. Yellow-rumped Warbler.* Bluish ash above, streaked with black; white below, with blackish streaks; four yellow spots, the crown, rump, and each side of breast: females and young brownish, with less yellow on head and breast. An exceedingly abundant and hardy migrant, breeding in the West Indies and even in Alaska. Seen everywhere, in flocks, often associating with troops of sparrows. The earliest migrant.

40. D. MACULATA. (Gm.) Bd. *Magnolia Warbler.* Back black with olive skirtings; rump yellow; head clear ash; a white stripe behind eye; sides of head black; under parts (except the white crissum) rich yellow, with black streaks confluent on breast. Female similar, but with less black, and more olive. L. 5; W. 2½; T. 2. A very abundant and brilliant little migrant, common in woodlands.

41. D. CÆRULEA. (Wils.) Bd. *Cærulean Warbler.* Bright blue with black streaks; white below; breast and sides with bluish lines. Female not streaked, greenish above, slightly yellowish below. L. 4½; W. 2½; T. 2. A regular but rare migrant and resident north. In Central and Southern Indiana it is a more common summer resident, and very abundant during migrations. A dainty species, often with the blue gray gnatcatcher in high tree tops.

42. D. PENNSYLVANICA. (L.) Bd. *Chestnut Sided Warbler.* Blackish above, much streaked; crown clean yellow; black patch above eye; pure white below; a line of bright chestnut streaks along side; wing patch yellowish. Female similar, but with less chestnut and black. L. 5; W. 2½; T. 2¼. A common migrant, easily recognized. Breeds sparingly in the North of the State.

43. D. STRIATA. (Forst.) Bd. *Black-Poll Warbler.* Whole crown pure black; black and olivaceous, almost everywhere streaked. Female more olivaceous. L. 5¾; W. 3; T. 2½. Common; the last to migrate. "When the black-polls appear in force the collecting season is about over." (*Coues.*)

44. D. BLACKBURNIÆ. (Gm.) Bd. *Orange-Throated Warbler.* Black

above with whitish streaks; crown patch, sides of neck and whole throat brilliant orange or flame color; female similar, but olive and bright yellow instead of black and orange; L. 5½; W. 2¾; G. 2½. The most brilliant species and one of the commonest during the migrations. The males precede the females a week or more. It is famed for the delicacy of its coloring, the beauty of which has attracted even the milliners, so that in the spring of 1875 I remember it was not uncommon as a part of the ornithological collections with which certain Chicago belles adorned their headwear.

45. D. DOMINICA. (L.) Bd. *Yellow-Throated Warblers.* Ashy blue; throat bright yellow; belly white; cheeks black; superciliary line white or yellowish in front; L. 5; W. 2¾; T. 2⅓. A common summer resident about Indianapolis; rare visitant about Chicago. (*Nelson.*) Also about Cincinnati. (*Langdon.*) The above relates to variety *albilora.*

46. D. KIRTLANDI.. Bd. *Dr. Kirtland's Warbler.* Ashy blue above; yellow and streaked below; lores black; L. 5½; W. 2¾; T. 2⅔. "Of the known specimens, four in number, three were taken in Ohio and one at sea between the Bahamas and Cuba. Supposed to have been seen in Wisconsin. (Racine, *Hoy.*)" (*Dr. Coues.*) Not given here as a bird of Indiana, but because of the interest attaching to the species.

47. D. DISCOLOR. (Vieill.) Bd. *Prairie Warbler.* Olive yellow; back with a patch of red spots; forehead, superciliary line, wing bars and under parts bright yellow; streaked below; sides of head with black; female similar. L. 4¾; W. 2¼; T. 2. A rare visitant and an elegant species. In evergreen thickets and oak barrens oftener than on prairies.

48. D. UIRENS. (Gm.) Bd. *Black-Throated Green Warbler.* Clear yellow olive; sides of head rich yellow; whole throat and breast jet black, this color extending along the sides; otherwise whitish below; L. 5; W. 2½; T. 2¼. A common migrant; a few are known to breed about Chicago. One of the few—30 to 40—little birds sometimes blown across the Atlantic to Europe.

49. D. PINUS. (Wils.) Bd. *Pine Creeping Warbler.* Yellow olive above; under parts and superciliary line yellow; no sharp markings anywhere; female more grayish; L. 5; W. 2⅔. Abundant in evergreen forests. Nelson found both old and young in the pine barrens, Lake county, where they undoubtedly breed regularly. A sociable bird, not confined to the pine regions, but associating with the palm warbler, and with it in April and May feeding in open fields, "mixing with titmice, kinglets and nathatches, the whole throng gaily and amicably flitting through the shady woods, scrambling incessantly on and all around the branches of the trees in eager, restless quest of their minute insect food." (*Dr. Coues.*)

50. D. PALMARUM. (Gm.) Bd. *Palm Warbler.* Brownish olive above, somewhat streaked; rump brighter; crown bright chestnut, superciliary line and under parts yellow, with brown streaks; no wing bars, female similar; L. 5; W. 2⅔; T. 2¼. Abundant migrant; rather terrestrial; not as bright colored as most of its congeners. They have a grasshoppery song, and go jetting their tails up and down like the wagtails, build their nests on the ground near some swampy thicket, and on the whole seem to have ideas of their own as unlike other wood warblers as their plain dress and earthy ways.

SEIURUS. Swainson. *Water Thrushes.*

51. S. AUROCAPILLUS. (L.) Sw. *Golden-crowned Wagtail. Oven-Bird.*

Bright olive green, white below, sharply spotted on breast and sides like thrushes; crown orange brown, with two black stripes; L. 6¼; W. 3; T. 2½. An abundant migrant, and common resident in suitable places. This and the two next are terrestrial warblers, warbling like titlarks, and spotted like thrushes, with both of which they have been classed. Their vocal powers are preëminent.

This species is noted for its loud ringing song and curious nest built on the ground and roofed over; hence named "oven bird."

52. S. NÆVIUS. Coues. *Water Thrush. Watzr Wagtail.* Olive brown above; pale yellowish beneath, thickly spotted with the color of the back; a yellow superciliary line; bill half inch long; feet dark; L. 6; W. 3; T. 2⅓. An abundant migrant; some remain to breed in secluded woods. (*Nelson.*) "One of our liveliest singers, beginning with a sudden, almost startling burst of melody that rings as clear as if the joyous bird had found a long lost mate, and then keeps falling till the slightest breath of air may blow the rest away."

53. S. MOTACILLA, (Vieill.) Bon. *Large-Billed Water Thrush.* Same general color as last, but white or pale buffy below, and less sharply spotted; bill much larger, about ¾ inch; bird larger; L. 6; W. 3¼; T. 2⅓. A summer resident, prefering dark woods or dense undergrowth in wet patches.

OPORORNIS. Baird. *Nimble Warblers.*

54. O. AGILIS, (Wils.) Bd. *Connecticut Warbler.* Olive green, ashy on head; throat and breast brownish ash; otherwise yellow below; not sharply marked; in fall more olivaceous; L. 5¾; W. 3; T. 2¼. Hundreds of this species are taken in New England in the fall, while it is rarely seen in the spring, as it appears to migrate inland up the Mississippi valley. A shy, strong-voiced migrant, rather common in the vicinity of Chicago. (*Nelson.*)

55. O. FORMOSUS, (Wils.) Bd. *Kentucky Warbler.* Clear olive green, bright yellow below; crown and sides of head and neck black, with a yellow superciliary stripe, which bends around the eye behind; L. 5¾; W. 3; T. 2¼. A rare visitant north; resident near Cincinnati, (Langdon); song much like that of the Maryland yellow-throat, and both very sweet singers.

GEOTHYPLIS. Cabanis. *Ground Warblers.*

56. G. TRICHAS, (L.) Cab. *Maryland Yellow Throat.* Olive green; forehead and broad mask on sides of head and neck jet black bordered with clear ash; under parts yellow; female obscurely marked without black mask and with less yellow; L. 4½; W. 2¼; T. 2⅓. A handsome warbler. I have seen it rise to a height of a hundred feet and descend, singing, to a tree in an open field; its usual haunt is in thickets near swamps and streams.

57. G. PHILADELPHIA, (Wils.) Bd. *Mourning Warbler.* Bright olive; clear yellow below; head ashy; throat and breast black, the feathers usually ash-skirted as though the bird wore crape (hence "mourning warbler"); when not in full plumage, both sexes resemble *O. agilis*, except that the tail is as long as the wings; L. 5½; T. and W. 2½. Not common; migrant; comes with the wild-crab blossoms.

ICTERIA. Vieillot. *Yellow-breasted Chats.*

58. I. VIRENS. (L.) Bd. Olive green; throat and breast bright yellow; belly abruptly white; lores black; a white superciliary line; wings and tail plain;

tarsus almost booted. L. 7⅓; W. 3¼; T. 3⅓. A quaint, restless songster, only excelled by the mocking bird in the variety and volubility of its notes. Common summer resident south; rarer north. Eats soft fruits as well as insects.

MYIODIŒTES. Audubon. *Fly-catching Warblers.*

59. M. MITRATUS. (Gm.) Aud. *Hooded Fly-catching Warbler.* Bright yellow alive; crown and neck all round jet black, enclosing a broad golden mask; under parts from the breast bright yellow; tail with white blotches; female olive instead of black; L. 5; W. 2¾; T. 2½. Migrant; Nelson quotes it as a rare summer resident about Chicago. "Breeds throughout its range." (*Coues.*) This and the three following are very expert in taking insects on the wing, having the broad, flat bill and rictal bristles of the clammatorial fly-catchers (*Tyrannidæ*), from which they are readily known by their oscine tarsus, and nine primaries.

60. M. PUSILLUS. (Wils.) Bon. *Green Black-capped Fly-catching Warbler.* Clear yellow olive; crown glossy black; forehead, lores, sides of head and entire under parts bright yellow; wings and tail unblotched; female with less black; L. 4¾; W. 2½; T. 2¼. Common migrant.

61. M. CANADENSIS. (L.) Aud. *Canada Fly-catching Warbler.* Bluish ash; crown speckled with black; under parts clear yellow, except the white crissum; lores black, continuous with black under the eye, and this passing as a chain of black streaks down the side of the neck and encircling the breast like a necklace; wings and tail plain; female similar, with less black; L. 5⅓; W. 2¾; T. 2½. An abundant woodland species, and one of the handsomest of warblers. Migrant.

SETOPHAGA. Swainson. *Redstarts.*

62. S. RUTICILLA. (L.) Sw. Black; sides of breast and large blotches on wings and tail orange red; belly white, reddish tinged. Female olive, similarly marked with reddish yellow. L. 5¼; W. 2½; T. 2½. An abundant migrant, and common summer resident about Chicago. A handsome fly catcher; getting his full suit of black, white and orange in his third year, as is indicated by the three sets of males observed in any vernal migration; those, like the female, without black or orange (first year); those, like the female, irregularly patched with pure black and with increased yellow (second year); and the perfectly dressed males nearly three years old. (*Coues.*) Mr. Gentry found many species of beetles, plant lice, cut-worms, etc., in their stomachs—the beetles and cut-worms indicating ground habits. He says: "We must admit that the redstart is not only a good hunter, but a voracious and indiscriminate feeder, like some other beauties we know of."

FAMILY XI. TANAGRIDÆ.

(*The Tanagers.*)

Primaries 9; bill conical (sometimes depressed or attenuated); the culmen curved; cutting edges not much inflected, sometimes toothed, notched or serrated; tarsus scutellate. Legs short; claws long; colors usually brilliant. Three hundred or

more species, widely various, found mainly in the warmer parts of America. Some are slender-billed and warbler-like; others have stout conical bills and stand close to finches.

Our single genus has a stout sparrow-like bill, notched at the tip and toothed near the middle of the upper mandible. They are frugivorous and insectivorous, and hence migratory in the United States. They live in woods, lay four or five dark, speckled eggs, nest in trees and are fair songsters. The seasonal and sexual differences in color are extreme. Dr. Coues makes them the text for a brief but vigorous onslaught upon the present custom of adorning wearing apparel with natural history collections, so pointed that I introduce it here: "These birds are famed for the beauty and variety of their coloration, being among those most frequently exhibited in the show-cases of the bird-stuffers and milliners, as well as on the head-wear of fashionable ladies, who have degenerated into walking advertisements of wretched taxidermy, in their rage for barbaric ornamentation of their persons. The style used to be to wear plumes selected for their beauty of coloration or their gracefulness of shape, but the itch of savagery has broken out with aggravated symptoms, to be satisfied with nothing short of an ornithological museum. I once counted the feathers of no less than fifteen different kinds of birds on the dress of an Indian squaw; but then her alleged husband had one necklace of grizzly bear's claws, and another of human finger-tips; and circumstances alter cases, you know. It seemed to me less singular than the case of another woman whom I examined with some care shortly afterward, on whose bosom rested a gilt-tipped tiger's claw, from whose ears depended two claws of the same animal, in whose hair nestled the greater part of the external anatomy of the bird known as the shitepoke, and to whose loins a live poodle dog was tied by a long blue string. Such a toilet, I think, would be far more effective with the rouge and lily-white in streaks, instead of layers, and a fish-bone through the nose. It is not that the tanagers are not highly ornamental, but that they are sometimes out of place."

PYRONGA. Vieillot. *Fire Tanagers.*

63. P. RUBRA. (L. Vieillot.) *Scarlet Tanager.* Male brilliant scarlet wings; and tail black; female clear green, clear greenish yellow below; L. 7⅓; W. 4; T. 3. A common spring and fall migrant; a few remain to breed. A well known bird, once seen never forgotten. The tanager flies through the green foliage as though it would ignite the leaves, says Thoreau. "I hold this bird," says Dr. Coues, "in particular, almost superstitious recollection, as being the very first of all the feathered tribe to stir within me those emotions that have never ceased to stimulate and gratify my love for birds. More years have passed than I care to remember since a little child was strolling through an orchard one bright morning in June, filled with mute wonder at beauties felt, but neither questioned nor understood. A shout from an older companion, 'There goes a scarlet tanager!' and the child was straining eager, wistful eyes after something that had flashed upon his senses for a moment as if from another world, it seemed so bright, so beautiful, so strange. 'What is a scarlet tanager?' mused the child, whose consciousness had flown with the wonderful apparition on wings of ecstacy; but the bees hummed on, the scent of flowers floated by, the sunbeam passed across the greensward, and there was no reply, nothing but the echo of a mute appeal to nature, stirring the very depths with an inward thrill. That night the vision came again in dreamland, where the strangest things are truest and known the best; the child was startled

by a ball of fire and fanned to rest again by a sable wing. The wax was soft then, and the impress grew indellible. Nor would I blur it if I could, not though the flight of years has borne sad answers to reiterated questionings—not though the wings of hope are tipped with lead and brush the very earth instead of soaring in scented sunlight." We certainly owe a great deal to the scarlet tanager, if it only led Dr. Coues, this princē of later ornithologists, to the study of American birds. Audubon and Wilson took fire in the same way, the latter from the red-headed woodpecker, which so kindled his enthusiasm that from the day he saw it his life was turned to the study of birds.

64. P. ÆSTIVA. (L.) Vieill. *Summer Redbird.* Male bright rose red throughout; wings a little dusky; female dull brownish olive, dull yellowish below. Size of last. A rare summer visitant north; I have not taken it about Indianapolis; a not rare summer resident in the southern part of the State.

FAMILY XII. HIRUNDINIDÆ.

(*The Swallows.*)

Bill "fissirostral," *i. e.*, short, broad, triangular, depressed; the gape wide and deep, reaching to opposite the eyes. Wings very long and pointed; the first primary usually the longest, and twice as long as the last; secondaries very short. tail more or less forked; feet weak; tarsus scutellate; plumage compact, and more or less lustrous. A very natural family of about one hundred birds, universally distributed. All are strong on the wing, insectivorous, and as a rule, migratory.

Of all birds swallows are best known and most welcome; recognized in every literature, "cherished witnesses of peace and plenty in the homestead, dazzling ornaments of busy thoroughfare."

The complete history of the family may be found in Dr. Coue's "Birds of the Colorado Valley," 1878, from which the following key to the seven North American species is transcribed:

KEY TO NORTH AMERICAN SWALLOWS.

1. Tail deeply forficate with linear lateral feathers; lustrous steel blue above; rufous below. . . . . *Hirundo erythrogaster.*
2. Tail simply emarginate; lustrous green; beneath white. *Tachycineta bicolor.*
3. Tail simply emarginate; opaque velvety green; beneath white. *Tachycineta thalassina.*
4. Tail nearly even; lustrous steel blue; rump rufous. *Petrochelidsn lunifrous.*
5. Torsus with tuft of feathers below; lustreless gray; below white. *Cotyle riparia.*
6. Outer edge of first primary serrate; lustreless brownish; paler below. *Stelgidopteryx serripennis.*
7. Bill very stout, curved; male entirely lustrous blue-black. *Progne purpurea.*

HIRUNDO. Linnæus. *Swallows.*

65. H. ERYTHROGASTRA. Coues. *Barn Swallow.* Lustrous steel blue pale chestnut below; throat and forehead deep chestnut; an imperfect steel blue collar; tail very deeply forked; L. 7; W. 5; T. 4½. Breeding in colonies about barns. Nests in pellets of mud in layers, with hay between. Often an extra platform is made close to the nest as a roosting place for the parents.

TACHYCINETA. Cabanis.

66. T. BICOLOR. (Vieill.) Coues. *White-bellied Swallow.* Lustrous green; pure white below; female duller; L. 6¼; W. 5; T. 2⅔. Abundant about water; nests in holes in trees and stumps, rarely in boxes; uses no mud. *T. thalassina* is a western species.

PETROCHELIDON. Cabanis.

67. P. LUNIFRONS. (Say.) Cab. *Cliff Swallow. Eave Swallow.* Lustrous steel blue; forehead, sides of head, throat and rump of various shades of chestnut; a blue spot on breast; belly whitish; L. 5⅛; W. 4½; T. 2⅓. An abundant migrant and resident. It formerly nested in cliffs, but now under the eaves of barns' dwellings, etc. The nests are made of pellets of mud or clay rolled into shape in the swallow's mouth. The nest is cup shaped, or even retort shape, with an elongated neck. They take to eaves for protection. "The birds' instinct—say, rather, reason—teaches them to come in out of the rain."

COTYLE. Baie.

68. C. RIPARIA. (L.) Baie. *Bank Swallow. Sand Martin.* Dark gray, not iridescent; white below; a brown shade across the breast; L. 4¾; W. 4; T. 2. An abundant summer resident; nesting in holes in sand banks. A cosmopolite; found in Europe, Asia, Africa and America.

STELGIDOPTERYX. Baird.

69. S. SERRIPENNIS. (Aud.) Bd. *Rough-winged Swallow.* Brownish gray; outer web of first primary more or less saw-like, with a series of minute recurved hooks, which are weaker in the female. L. 7½; W. 6; T. 3⅓. A summer resident, common south and central; rare visitant to Northern Indiana. Nests like the preceding, which it resembles superficially, in holes in river banks, and even in knotholes and stone walls. They rarely dig holes for their nest, preferring those already formed.

It is interesting to note that this species, like all of its tribe, except the bank swallow, which still retains its primitive habits, makes use of holes in masonry for its nests, thus paying its compliment to human civilization.

PROGNE. Baie.

70. PROGNE SUBIS. (L.) Bd. *Purple Martin.* Lustrous blue-black throughout; female duller, whitish and streaky below; bill stout, almost hooked. L. 7½; W. 6; T. 3⅓. A very common summer resident; arrives early in April; goes south the first of September. No American bird is better known. Where it can find no boxes it nests in hollow trees or the holes made by woodpeckers. They drive the

bluebird and English sparrow from their boxes in short order. Like many other birds, the same pair often returns to the same nest year after year, finding their old homes with unerring precision after migrations of thousands of miles. Like all swallows, the present species is a great insect eater, destroying incalculable numbers, including many injurious species. They should be preserved in the interests of farmers and fruit growers, not wantonly destroyed, though a tempting target to the marksman. "*Needless taking of any life is a crime against Nature.* We may well pause at this, even if no spark of sentiment should kindle indignation at the thought of cutting short such useful, bright and joyous life. Things both useful and beautiful are not so common that we can afford to sacrifice them in vain. The rowdy boys and all the crew of tramps and potters of the gun who shoot swallows for sport may be seriously admonished that these birds are worth more to society than their idle, vicious selves." (*Dr. Coues.*)

FAMILY XIII. AMPELIDÆ.

(*The Wax Wings.*)

Primaries 10; bill stout, triangular, depressed, decidedly notched and hooked, with the gape wide. Nostrils overhung by membrane covered with bristly feathers. Tarsus short, with the side plates more or less decided; lateral toes nearly equal.

The sub-family, *Ampelinæ*, constitutes a single genus of three species. All are crested, soft plumaged birds of a handsome common drab color; the ends of the secondaries, and sometimes the tail feathers, are tipped with horny appendage. looking like red sealing wax. The tail is short and square, much shorter than the long wings and yellow tipped in our species. The Waxwings are migratory and gregarious, eating insects and soft fruits. Their voices are weak and wheezy, and they can scarcely be regarded as songsters.

AMPELIS. Linnæus. *Waxwings*

71. A. GARRULUS. (L.) *Bohemian Waxwing.* General color, silky ashy brown, with a red tinge; front and side of head with purplish cinnamon; a black band across forehead around head; throat black; crissum chestnut red; two broad white wing bars. L. 7½; W. 4½; T. 3. A beautiful bird found in Northern America, Europe and Asia. An irregular winter resident in the vicinity of Chicago, sometimes in large flocks feeding upon the juniper berries near Lake Michigan.

72. A. CEDRORUM. (Vieill.) Bd. *Cedar Bird. Cherry Bird. Southern waxwing.* Like the above, but smaller and less cinnamon tinged, chin black; strip across face black, bordered above by whitish; belly yellowish; crissum white; no wing bars L. 6½; W. 3¾; T. 2½. Common; irregular migrant; often in large flocks in winter about cedar trees; have seen them in January in flocks in Indianapolis. Not in good favor with fruit growers, as they eat cherries and small fruits, but this is more than made up by the insects they destroy, and, as Dr. Coues remarks, their indiscriminate slaughter necessarily turns a well-poised balance in favor of insect pests, and by so much against the true interests of agriculture.

FAMILY XIV. VIREONIDÆ.

Primaries 10; bill shorter than head, stout, compressed, decidedly notched and hooked. Rictus with bristles. Nostrils exposed, overhung with a scale. Tarsus scutellate; toes soldered at base for the whole length of the basal joint of middle toe, which is united with the basal joint of the inner and the two basal joints of the outer.

A family of sixty or seventy small olivaceous American birds. Coloration blended and varying little with age or sex. All are insect-eaters, and many are remarkable songsters. They are agile, plucky little birds; shrikes on a small scale. The nest is thin, neat, and compact, pensile from the fork of a twig, with white spotted eggs. Outs fall in the genus *Virea* of Vieillot, with general characters as given above.

73. VIREO OLIVACEOUS, V. *Red-Eyed Vireo. Greenlet.* Olive green, crown ashy, edged with blackish; a white superciliary line; white below, somewhat olive shaded; eyes red; L. 6; W. 3⅓; T. 2½. A common summer resident, and an energetic and jolly songster.

74. V. PHILADELPHICUS. Cassin. *Brotherly Love. Greenlet.* Dark olive green, ashy on crown; no black lines on head; a whitish superciliary line; below faintly yellowish, fading to white on throat; L. 4¾; W. 2⅔; T. 2¼. Migrant; not uncommon in the northern part of the State, though usually recorded as a rare species.

75. V. GILVUS. Bp. *Warbling Vireo.* Colors as in the preceding, but the spurious quill evident. A common summer resident and an exquisite songster.

Mr. T. G. Gentry, of Philadelphia, who has paid especial attention to the food of our birds, finds that this vireo feeds mainly upon dipterous and lepidopterous insects, the larvæ of many of which are the worst pests of the farmer and fruit-grower. Strangely enough they usually nest in tall trees in parks, lawns, orchards and city shade trees, commonly fifty to one hundred feet from the ground, free from all enemies except the parasitic cowbird.

"Their song is a tender, gentle strain, with just a touch of sadness, borne on the same breath that wafts to us the perfume of April's early blossoms; and these are all the sweeter for the instillation of such song. From the poplar, that glances both silver and green as its tremulous verdure is stirred—from the grand old halls of the stately, splendid, flowering liriodendron—from the canopied shade-weaving elm, and the redolent depths of the magnolia, issues all summer long the same exquisite refrain, while the singers glide through their hermitage unseen."

76. V. FLOUIFROUS. Vieill. *Yellow-Throated Vireo.* Rich olive green above, becoming ashy on rump; bright yellow below; belly white; superciliary line and arbital ring yellow; L. 5¾; W. 3; T. 2. Common migrant and not rare resident; a brightly colored species.

77. V. SOLATARIUS. Vieill. *Blue-Headed* or *Solitary Greenlet.* Bright olive green; crown and sides of head bluish ash; stripe to and around eye white; a dusky line below it; white below, sometimes washed with pale yellow. L. 5⅔; W. 3; T. 2⅓. A stout, handsome greenlet, nesting along the borders of forests and unfrequented roads, preferring the red cedar and red maple. The young are fed on the larvæ of the geometrid moths which infest our trees; flies, gnats, gall-flies and other insect pests form a varied bill of fare. Mr. Gentry's notes on the nidification of this species are full of interest.

78. V. NOUEBAROCENSIS. Vieill. *White-Eyed Vireo.* Bright olive green; white below; sides and crissum bright yellow; pale wing bars; stripe from bill to and around eye yellow; eyes white; L. 5; W. 2⅓; T. 2¼. A sprightly bird, unlike the preceding, nesting in thickets; a loud and varied song. Its white eyes distinguish it from all other wrens. Wilson also called it the "politician," because of its fondness for newspaper scraps. Like its relatives, it is a fell destroyer of noxious insects, feeding eagerly on the destructive canker worm (*Brewer*), and in Nebraska feeding on the still more destructive locusts, tearing them to pieces for its young. (*Prof. Aughey.*) To it, as to other vireos, the horticulturist and farmer owe a lasting debt of gratitude because of the immense number of noxious larvæ, diptera, plantlice, cutworms, etc., they daily devour.

FAMILY XV. LANIIDÆ.

(*The Shrikes.*)

Primaries 10, the first short (rarely wanting); bill hawk-like, very strong, the upper maudible toothed and abruptly hooked at the tip; both maudibles distinctly notched. Wings short, rounded. Tail long. Tarsus scutellate on the outside as well as in front. Sexes alike. About one hundred species found in most parts of the world, remarkable for their energy and pugnacity. They are quarrelsome among themselves and tyranize over weaker species. They are carnivorous, feeding on such insects, small birds and quadrupeds as they can capture, even dashing on caged birds and pursuing other species at the cost of their own lives. Their most notable and inexplicable habit is that of impaling their prey on sharp thorns, as the osage, wild apple and honey locust, and leaving it sticking there. This habit has given them the name of "butcher bird," and while many ingenious theories have been suggested as to the purpose of these shambles none are entirely satisfactory. Of nearly a dozen species composing *Collurio*, there are but two American species. These have the rictus with bristles, the nostrils concealed by bristly tufts, and the colors black, white and gray. At first blush they resemble the mocking bird in color and action, but a glance at the bill soon settles the diagnosis.

COLLURIO. Vigors. *Shrikes.*

79. C. BOREALIS. Baird. *Great Northern Shrike.* Clear bluish ash above; black bars on side of head *not* meeting in front, interrupted by a white crescent on under eyelid; rump and shoulders whitish; wings black, white below, waved with blackish; L. 9½; W. 4¼; T. 4¾. A rare winter resident with the snow bunting in Marion county and south, coming with great snow and cold, as in January, 1879. In Northern Indiana it is a resident from the last of October to the last of March, some remaining even later. In the fur countries it is also known as "White Whisky John" from its resemblance to the Canada jay, known as the "Whisky John" by corruption of the Indian name *Wiskachon.* (*Dr. Coues.*)

80. C. LUDOVICIANUS. Bd. *Common Shrike. Loggerhead Shrike.* Clear ashy blue; a whitish superciliary line; black bars on sides of head, meeting across forehead; no crescent on under eyelid; white below, scarcely or not dark waved; L. 8¼; W. 4; T. 4¼.

Two varieties are recognized—typical *ludovicianus*, smaller and darker than variety *excubitorides*, which is lighter on the back and rump, and is known as the "White-rumped shrike." Both varieties are found in the State, the former a common resident. I took a fully fledged young one from a nest in May and reared it on meat. It became quite tame, and when I refused it the house, would follow me from the butcher's and take meat from my hand. It remained in the neighborhood until October, and was several times taken for an escaped mocking bird. They kill many small birds and innocent quadrupeds, but balance the account by destroying myriads of grasshoppers. Dr. Coues—a persistent opponent of the European sparrow in America—contends that the shrike is entitled to our gratitude "for his interference in our behalf against the bird pest of this country." The shrikes killed the sparrows, and "Bostonese idiocy" killed the shrikes. "Boston could scarcely do a wiser thing, as far as the sparrow plague is concerned, than support a colony of shrikes." (*Ib.*) But we will speak of the English sparrow pro and con when we come to him in his turn.

FAMILY XVI. FRINGILLIDÆ.

(*The Finches.*)

Primaries 9. Tarsus strictly oscine. Bill mostly shorter than head, robust, of a conical form, with the line of union of the jaws angulated near base of bill; that is, "the corners of the mouth drawn down." This feature is universal in the family, and also among blackbirds, but these are known by the greater length and slenderness of the bill.

The greatest family of birds; 500 species, throughout the world except Australia. They comprise about one-eighth of American birds, and with the warblers, about one-fourth of the birds of Indiana. They feed mainly on seeds, but are not averse to berries or insects. Nearly all are songsters; some are among the sweetest. Usually they are plainly clad, a streaky brown being the common tint; others vie with the most brilliantly colored birds, and undergo marked changes in plumage.

ARTIFICIAL KEY TO THE GENERA OF FINCHES.

* Large species; more than 7¼.

† Tail longer than wings.

a. Crested; red or rosy; bill large, reddish. . . . *Cardinalis*, 22.

aa. Not crested; black or brown, with chestnut on sides; wings and tail with white. . . . . *Pipilo*, 2 .

aaa. No crest; head black; no white on tail. . . . *Zonotrichia*, 13.

†† Tail shorter than wings.

b. Bill large and stout. ("Grosbeaks.")

c. Black and white (male) or brown, streaked (female); under wing coverts rosy or yellow. . . . . *Goniaphea*, 19.

cc. Rosy red (male) or gray, with brownish yellow on head and rump (female.) *Pinicola*, 2.

ccc. Bill greenish yellow, as long as tarsus; wings and tail black. *Hesperiphona*, 1

bb. Bill moderate or small.

d. White, with black on wings and tail; hind toe very long.

Plectrophanes, 7.

dd. Streaked above; head striped; tail about as long as wings.

Zonotrichia, 13.

** Species of medium or small size; length 7¼ or less.

‡ Mandibles long and much curved, their points crossed; colors mainly red or olive. . . . . *Loxia*, 4.

‡‡ Hind claw straightish, twice as long as middle claw; colors black, white and brown. . . . . *Plectrophanes*.

‡‡‡ With neither of the preceding combinations.

e. Nowhere decidedly spotted or streaked.

f. Blackish or ashy; belly and outer tail feathers white; bill pale and without ruff. . . . . *Junco*, *16*.

ff. Yellow more or less; base of bill with a small ruff; no blue.

Chrysomitris, 6.

fff. Chiefly or entirely blue, male; greenish or plain brown, female.

g. Length more than 6; wings with chestnut or whitish; bill stout.

Guiraca, 20.

gg. Length 5 to 6; gonys usually with a dusky stripe. . *Cyanospiza*, 21.

ee. Somewhere or everywhere decidedly spotted or streaked.

h. One or more outer tail feathers partly or wholly white.

i. Hind claw long and nearly straight; colors black and white or brown.

Plectrophanes, 7.

ii. Hind claw not specially elongated.

j. Bend of wing with chestnut; crown and breast streaked; tail shorter than wings. . . . . *Poœcetes*, 10.

jj. No chestnut on wing; breast unstreaked; head with black, white and chestnut; tail nearly as long as wings. . *Chondestes*, 12.

hh. Tail feathers rigid, acute, almost scansorial; small, streaked marsh sparrows, with yellow-edged wings. . . . *Ammodromus*, 11.

hhh. Tail feathers more or less rounded and soft at the end; none of them white.

k. Wings decidedly longer than tail.

l. With crimson or clear (not rusty) red; a ruff at base of bill.

m. Crown crimson; throat dusky. . . . . *Aegiothus*, 5.

mm. Crown, chin, throat, and often whole plumage washed with red.

Female of *Carpodacus*, 3.

ll. With definite yellow somewhere.

n. Bases and edges of quills and tail feathers yellow; bill acute.

Chrysomitris, 6.

nn. Rump sulphur yellow; bill with a small ruff. . *Aegiothus*, 5.

nnn. Edge of wing and superciliary line, or spot, at least yellow or yellowish; no ruff.

o. Breast yellow; throat patch or streaks black, bill bluish.

Euspiza, 18.

oo. Breast buffy or streaked; wings less than 2½; tail feathers narrow. . . . . *Ammodromus*, 11.

ooo. Breast streaked; wings more than 2½; secondaries nearly as long as primaries. . . . . *Passerculus*, 9.

lll. With no definite crimson nor yellow anywhere.

p. Introduced birds, not streaked below; throat black in male. *Passer*, 8.

pp. Native birds, much streaked below.

q. Inner claw reaching half way to tip of middle claw; tail, wings, etc., with much chestnut red; wings more than 3. *Passerella*, 17.

qq. Olivaceous; no black nor chestnut; wings more than 3; secondaries not lengthened. . . Female of *Carpodacus*.

qqq. Inner secondaries lengthened, about as long as primaries; wings less than 3. . . . . *Passerculus*, 9.

kk. Wings little if any longer than tail.

r. Tail feathers very slender, rather stiff and sharp pointed.

s. Sharply streaked below. . . . . *Melospiza*, 15.

ss. Not streaked below (when adult.)

t. Crown chestnut in adult (streaky in young); no yellow.

u. Tail rounded; length about 5¾; wings and tail less than 2½; Sharply streaked above. . . . *Melospiza*, 15.

uu. Tail forked; length 5 to 6¼; wings and tail 2½ to 3. *Spizella*, 12.

tt. Crown not chestnut in adult; head striped; length more than 6. *Zonotrichia*, 13.

1. *HESPERIPHONA.* Bonaparte.

81. H. VESPERTINA. Bon. *Evening Grosbeak.* Olivaceous; crown, wings, tail and tibia black; forehead and crissum yellow; bill large, yellowish; L. 8; W. 4¼; T. 2½. A winter visitant at irregular intervals about Chicago. (*Nelson.*)

2. *PINICOLA.* Vieillot.

82. P. ENUCLEATOR. (L.) Vieill. *Pine Grosbeak.* Male chiefly red; white wing bars; female ashy gray with brownish yellow on head and rump. L. 8½; W. 4½; T. 4. Now a rare visitant north; formerly more common. (*Nelson.*)

CARPODACUS. Kauf.

83. C. PURPUREUS. Gray. *Purple Finch.* Everywhere streaky; male flushed with red, most intense on the crown, fading before and behind, female olive brown with no red; bill stout; L. 6; W. 3⅓; T. 2½. Common winter resident north; rare visitor south. A few remain to breed north; taken about Indianapolis in spring, and about orchards and woods; a delightful songster.

4. *LOXIA.* Linn. *Crossbills.*

84. L. CURVIROSTRA. Var. AMERICANA. Coues. *Red Crossbill.* Male brick red; wings unmarked; female brownish olive; L 6; W. 3⅓; T. 2½. Rare winter visitant throughout the State. Sometimes breeds *in winter* in the pine-clad mountains of the United States.

85. L. LEUCOPTERA. Gmel. *White-winged Crossbill.* Male rose red; white wing bars; female brownish olive, speckled with dusky; rump yellow. Like the preceding, an irregular winter resident. Both species were abundant about Cin-

cinnati, the winter of 1868–9. Has been seen breeding in winter. This species is often accidental in Europe; often taken in Great Britain. They have been seen crossing the Atlantic 600 miles off Newfoundland, before a stiff westerly breeze, and ten or twelve were secured from the rigging of the vessel. Many of our common land birds, following the Atlantic coast or crossing its curves, during the autumnal migrations, at a great height from the land, are caught up in the great belt of westerly winds, about 20° wide, having its greatest intensity about latitude 45°, and are carried, that is, such as do not perish, across the Atlantic to Europe. Some 60 or more species of our birds have thus found their way to Europe. The Bermudas, 700 miles off the nearest land (Cape Hatteras), are supplied mainly in the same manner. A number of European land birds reach North America by autumnal movement, by way of Iceland and Greenland, being caught up, in part, by the reverse current of winds blowing from Northern Europe to Northern America. And so we find the birds subjected to the great winds of heaven, which, like mountain chains, forests, river courses, moisture, altitude and temperature, modify the unerring impulse which, acting alone, would probably lead the bird to fly due north in the spring and south in the fall, as the sun moves north or south across the line, with the awakening train of animal life and vegetable growth on which the life of the bird depends ever in his rear. (See Baird on "Distribution and Migrations of American Birds," in American Journal of Science and Arts, vol. xli, May, 1866.)

5. *ÆGIOTHUS.* Cabanis. *Linnets.*

86. Æ. LINARIUS. Cab. *Red Poll Linnet.* Crown crimson in male and female; throat, breast and rump rosy in male; streaked above; chin blackish; L. 5¾; W. 3; T. 2½. An abundant winter resident north; in flocks last of October; leaves in March.

6. *CHRYSOMITRIS.* Boie. *Goldfinches.*

87. C. TRISTIS. Bon. *Am. Goldfinch, Yellow Bird, Thistle Bird.* Male rich yellow; rump whitish; wing bars white; adult male with black on crown, wings and tail; female more olivaceous; fall plumage pale yellow brown, assumed the last of October and worn until May, when its bright nuptial dress appears. A jolly little bird; many brave the winter with us; they are well known by the children, and by them are called the "wild canary bird," which is about as distinctive as its other common names.

88. C. PINUS. Bon. *Pine Linnet.* Sexes alike; no black on head; plumage streaky brown, suffused with yellow in the breeding season; smaller than the preceding. Common winter resident north. Dr. Jordan took a specimen in midsummer near Indianapolis.

7. *PLECTROPHANES.* Meyer. *Longspurs.*

89. P. NIVALIS. Meyer. *Snow Bunting. Snow Flake.* Pure white in the breeding season, with black on back, wings and tail; bill and feet black; bill small; hind claw long, but curved; L. 7; W. 4½; T. 3. A beautiful bird, well known to all "Hoosiers" from New England or the Upper Lake region, where it is an unsuspicious bird, feeding from the door steps; readily taken in clumsy traps, and as fond of a cold snow storm as a duck of water. They were quite common about Indianapolis during the extreme cold and snow of January, 1879.

90. P. LAPPONICUS. Selby. *Lapland Longspur.* Male with head and throat mostly black; a chestnut collar; back black and streaky, whitish below; bill longer than in *nivalis*, without ruff; female and winter birds with less black; L. 6¼; W. 4; T. 2¾. Abundant winter resident in the prairies north; in straggling flocks. October to May. Some remain until April 15, and are found in breeding plumage. (*Nelson.*)

91. P. PICTUS, Swainson. *Painted Longspur.* Male with head and upper parts mostly black; collar and upper parts rich fawn color; legs pale; female duller. Nelson observed this species as a common migrant on the borders of Lake county, Ind., where even seventy-five were seen in a flock.

8. *PASSER.* Brisson. *House Sparrows.*

92. P. DOMESTICUS. Linnæus. *English Sparrow.* Male chestnut brown above, thickly streaked; ashy below; throat, lores and chin black; female duller without black; feet small; length 6 inches; wing 2¼; tail 2½. Introduced from Europe; abundant in cities, and now also in suburbs. Cosmopolite; found in North Africa, the Levant, Hindoostan, and Europe. Introduced in Portland, Me., in 1858, six birds only. Various parties brought over lots of a dozen or so, releasing them in various eastern cities. The council of Boston took two hundred from Germany in 1868 All died but twenty; these increased to one hundred and fifty the following summer; were fed at the public charge, and finally stocked the city. ("Bostonese Idiocy," as Dr. Coues calls it.)

Philadelphia imported one thousand in good condition in 1869. These scattered about, some as far as Morristown. Their exploits in stripping cherry trees of their bloom were not favorably welcomed. (*Brewer.*)

At this time the shade trees in the cities of New York, Brooklyn and Philadelphia were infested with the larvæ of measure-worms, which destroyed the foliage. Since their introduction the worms have almost entirely disappeared. (*Brewer, History of N. Am. Birds.*)

In my judgment the shade trees of Indianapolis (as thrifty and clean as the average in city streets, and furnishing but a poor field for the entomologist) are preserved from the bark-borers by these birds, which kill the insects while on or near the trees. At least in Chicago suburbs the same tree, the soft maple (*Acer dasycarpum*), is infested and often destroyed by worms. The English sparrow was introduced to Indianapolis in 1874, mainly, I understand, through the influence of Dr. H. Carey. Few boxes are placed for them now, and in many yards the nests are destroyed as soon as made. They are extending to the suburbs, but are not on the increase in the city. There is much complaint on account of the litter they make about dwellings. They fill up water troughs and make the water dirty. They keep other birds away more by eating their food than by fighting them.

It is not to be expected that robins, thrushes, catbirds, etc., whose young eat forty per cent. more than their own weight daily of grubs and worms, will nest freely in a large city where such food can not be procured, yet they nest occasionally about the city yards and parks. I have counted twelve species of native birds about University Park (centrally located) during a summer day.

The persistent enemies of the English sparrow are Dr. Coues and Mr. Gentry, who, through the Natural History Serials and in their own works, have consistently opposed the bird from the first. Mr. Gentry's book of nearly two hundred pages is a complete repository of knowledge regarding this species. The book is

written professedly *against* the naturalizing of the house sparrow in the United States, and, falling into the hands of the editors of agricultural papers, has pretty generally biased them against the bird. The agricultural districts are yet to be heard from, and so far the opposition comes from dwellers in cities rather than from the farming population.

The European tree sparrow, *passer montanus*, distinguished by the chestnut crown and the similarity of both sexes and the young, was introduced with the house sparrow, and is abundant at St. Louis (*Dr. J. C. Merrill*), and perhaps other places

9. *PASSERCULUS.* Bonaparte.

93. P. SAVANNA. Bon. *Savanna Sparrow.* Sharply streaked; streaks on back blackish; line over eye and edge of wing yellowish; L. 5½; W. 2⅓; T. 2. Abundant migrant, and north a summer resident.

10. *POŒCETES.* Baird.

94. P. GRAMINEUS. Bd. *Bay-Winged Bunting, Grass Finch, Ground Bird.* Thickly streaked all over; slightly buffy below. L. 6; W. 3; T. 2½. Known at once by the chestnut bend of wing and white outer tail feathers. His habit of singing after sundown has suggested the name of Vesper Sparrow; the song is charmingly described by John Burroughs in the "Wake Robin."

11. *AMMODROMUS.* Swainson. *Shore Sparrows.*

95. A. PASSERINUS. Baird. *Yellow-Winged Sparrow.* Streaked above; feathers edged with bay; breast buffy; wings and tail short; edge and bend of wing and line over eye yellow; L. 5; W. 2⅔; T. 2. A timid little bird, running like a mouse among the weeds and grass; notes sharp, grasshopper-like. A summer resident, from May to September, everywhere in fields and on prairies north; not so common in Central and Southern Indiana.

96. P. HENSLOWI. Baird. *Henslow's Bunting.* Smaller and more yellow above; breast, etc., with some sharp black streaks. Common summer resident on the prairies from May to September. "Has a weak, squeaky song, consisting of several sharp notes." (*Nelson.*)

97. A. LECONTEI. Baird. *LeConte's Sparrow.* This rare migrant has been taken by Nelson at Riverdale, Illinois, near the Lake county line. It is intermediate between the preceding and the next; back with rufous; tail feathers sharp and slender; breast unspotted. As in those described above, there is a light medium stripe in the crown and the tail feathers, acute but not rigid.

98. A. COUDACUTUS. Var. *Nelsoni. Nelson's Sharp-Tailed Finch.* Bill slender; tail feathers sharp and rather stiff; back sharply streaked; L. 5; W. 2⅓; T. 1¾. It is with pleasure that I record this pretty finch, not uncommon in the marshes about Lake Michigan, where it was first discovered by my friend, E. W. Nelson, with whom I first collected and studied birds, and to whose list of Birds of Northeastern Illinois I am mainly indebted for the notes on distribution in Northern Indiana.

12. *CHONDESTES.* Swainson.

99. C. GRAMMACA. Bonap. *Lark Finch.* Streaked above, ashy below; crown and ear coverts chestnut, blackening on forehead, with whitish median and

superciliary stripes; black line through and below eye; a black line on each side of the white throat; a black pectoral spot. L. 6½; W. 3½; T. 3. A common summer resident in the prairie region; nests on the ground; a fine songster.

13. *ZONOTRICHIA.* Swainson.

100. Z. LEUCOPHRYS. Sw. *White-crowned Sparrow.* Streaked above, with little chestnut; crown with a broad white median stripe, a narrow black one and a white one on each side of it; no yellow anywhere; throat like breast; crown rich brown in the young. L. 7; W. 3¼; T. 3¼.

Frequenting borders of cultivated fields and hedge-rows. "He is the rarest and most beautiful of the sparrow kind, He is crowned as some hero or victor in the games." (*A Bird Medley—Burroughs.*) Far from being the rarest with us, though we can agree in the many beautiful things this delightful author says of the white-throat and his mates.

101. Z. ALBICOLLIS. Bon. *White-throated Sparrow.* Much chestnut streaking above; crown black, with white median and superciliary stripes; spot over eye and edge of wing always yellow; ashy below, whitening on throat; female duller; L. 7; W. 3; T. 3 1-5. Abundant migrant and a handsome sparrow; its song a timid and tremulous strain.

14. *SPIZELLA.* Bonaparte. *Chippys.*

102. S. MONTICOLA. Bd. *Tree Sparrow.* Streaked; crown chestnut; bill black above, yellow below; neck, line over eye and under parts ashy gray; a dark pectoral blotch; white wing bars; L. 6¼; W. 3; T. 3. An abundant and hardy winter resident; have seen them to-day (Jan. 16), in thickets near the city.

103. S. PUSILLA. Bon. *Field Sparrow.* General color of preceding but paler and duller; bill pale; wing bands obscure; smaller. Summer resident. Often nesting in low bushes, and found in open woods oftener than in "fields."

104. S. SOCIALIS. Bon. *Chippy, Hair Bird.* Streaked above with much dull bay; crown chestnut; bill, forehead and streak through eye black; ashy below. Summer resident, very abundant here. Sometimes nests on the ground. A well known little bird, holding its ground pretty well in cities in spite of the English sparrow. Lines its nest with hairs. "If I wish for a horse-hair for my compass-sight, I must go to the stable, but the hair-bird with her sharp eyes goes to the road." (*Thoreau's Manuscript.*)

105. S. PALLIDA. Bon. *Clay-Colored Sparrow.* Smaller than the chippy; pale brownish yellow, streaked with black; crown grayish, with median stripe. Nelson gives this as a rare summer resident on the borders of prairies near Chicago, but I can not extend its eastern range positively into Indiana.

15. *MELOSPIZA.* Baird. *Song Sparrows.*

106. M. MELODIA. Bd. *Song Sparrow.* Much streaked above, and on breasts and sides; crown with obscure median stripe; below white; L. 6½; W. 2½; T. 3. Resident; may be found at all seasons about Indianapolis. Their cheery song may be heard the year round, but sweetest and oftenest in the spring. Burroughs has noticed that these birds do not sing alike; some are decidedly original, and occasionally one is a "master songster"—some Shelly or Tennyson among his kind.

107. M. PALUSTRIS. Bd. *Swamp Sparrow.* Smaller; crown chestnut; wings chestnut tinged; breast with few streaks or none; tail shorter than in the song sparrow. Not common in Marion county; in the marshes north "outnumbering *M. melodia*." (*Nelson.*) Known by its general reddishness, and to the initiated by its peculiar chirp—a few trilling, monotonous minor notes.

108. M. LINCOLNI. Bd. *Lincoln's Finch.* Everywhere thickly, narrowly and sharply streaked; breast with a broad band of pale buffy or yellowish brown; sides washed with the same; L. 5½; W. and T. 2½. Migrant; not common. Nelson gives it as a common migrant north, and probably nesting.

16. *JUNCO.* Wagler. *Snow Birds.*

109. J. HYEMALIS. Sel. Blackish, or ashy; belly and one to three outer tail feathers white; bill pale without ruff. Female more grayish. L. 6¼; everywhere in town and country during the migrations; many are resident from November to April. Have seen it on the Black Mountains in July.

17. *PASSARELLA.* Swainson. *Fox Sparrows.*

110. P. ILIACA. Sw. Ashy above; overlaid and streaked with rusty red, which becomes bright bay on rump, tail and wings; white below, with arrow-shaped spots and streaks, numerous on breast; feet stout, with long claws; L. 7; W. 3½; T. 3. Common in the spring and fall migrations; frequenting damp woods and thickets. Of this bird Dr. Coues says: "What one of our fringilline birds is so entirely pleasing as this, my favorite? Strong, shapely, vivacious, yet gentle, silver-tongued; clad most tastefully in the richest of warm browns; and, that nothing may be wanting to single him out from among his humble relatives, a high-bred bird, exclusive, retiring."

18. *EUSPIZA.* Bonaparte. *Black-throated Bunting.*

111. E. AMERICANA. Bon. Grayish and streaked above, wing coverts chestnut; line over eye, maxiliary stripe, edge of wing, breast and part of belly yellow; throat patch black; otherwise white below. Female with little chestnut, and only a few streaks of black; L. 6¾; W. 3¼; T. 2¾. A sleek-plumaged, handsome sparrow, with a unique but scarcely musical song; it hops up on the fence and grinds this song off as you pass by.

19. *GONIAPHEA.* Bowdich. *Rose-breasted Grosbeak.*

112. G. LUDOVICIANA. Bow. Male with head, nech and upper parts mostly black, with white on rump, wings and tail; belly white; breast and under wing coverts of an exquisite rose red; female olive brown, much streaked, with the under wing coverts saffron yellow. L. 8½; W. 4; T. 3¼.

Migrant in Marion county; Audubon found them breeding near Cincinnati; rather common summer resident north. (*Nelson.*) One of our handsomest birds—perhaps the handsomest, as well as a most brilliant songster. They go skipping over the forest, usually at the tops of the high sycamores along creeks and bottoms, stopping at times to pour forth their rich, rolling song.

20. *GUIRACA.* Swainson. *Blue Grosbeak.*

113. Mentioned only because Indiana comes within the range of this Eastern species.

21. *CYANOSPIZA.* Baird. *Indigo Birds.*

114. C. CYANEA. Bd. Male indigo blue, clear on head, greenish behind; female plain warm brown, obscurely streaked; known from other small sparrows by a dusky line along the gonys (middle line of lower mandible). Abundant in summer; a dainty bird and tireless tree top songster.

22. *CARDINALIS.* Bon. *Cardinal Grosbeaks.*

115. C. CYANEA. Bd. *Redbird.* Clear red, ashy on head; chin and fore-head black; crest conspicuous; female ashy brown, more or less washed with red; L. 8½; W. 4; T. 4½; resident abundant; through the fall and winter found in thickets near creeks, or on borders of cornfields; "in addition to corn, various seeds and the wild grape form a considerable portion of its food." (*Langdon.*) A loud whistling singer, much sought as a cage bird; the nest is easily found, as it is low, and the male in his pride readily leads to it; the farmer's lads get the young, and about Indianapolis sell them for $2.00 a pair.

23. *PIPILO.* Vieillot. *Towhee Buntings.*

116. P. ERYTHROPHTHALMUS. (L.) V. *Chewink, Marsh Robin.* Black, belly white; sides chestnut; outer tail feathers, primaries and inner secondaries with white; female clear brown instead of black; L. 8¼; W. 3½; T. 4. Common resident; nests on the ground in thickets. Besides its call of "towhee," they sing a pleasant love song as early as March. It is a shy April bird, singing from the top of a high bush or low tree, close to cover, from which it pitches out of sight if molested. Except, perhaps, the bobolink, he is the sharpest marked of our ground birds—black backed, bay sided and white vested. He is much oftener seen than heard.

FAMILY XVII. ICTERIDÆ.

(*The Blackbirds.*)

Primaries 9; commissure angulated, as in the sparrow family, but the bill rarely shorter than the head, straight or gently curved, without notch or rictal bristles; legs stout; tarsus strictly oscine; plumage brilliant or lustrous, black being the predominant color, often with red or yellow; females usually different, smaller in size, brown or streaky in the lustrous species and yellowish or dusky in the brightly colored ones. Their notes are usually sharp, often richly melodious, and in other cases harsh.

About 100 species in 20 genera; all are American. They are allied to the sparrows on one side (as the bobolink and cowbird), and to the crows on the other (crow blackbirds).

There are three sub-families: *Marsh Blackbirds*, *Orioles*, and *Crow Blackbirds*.

Sub-family *Agelæinæ*. *Marsh Blackbirds*. These are gregarious, grammivorous species usually terrestrial and chiefly palustrine, not notable vocalists, building rude, not hanging nests, with four to six spotted or limned eggs. Feet strong for walking or grasping swaying reeds; wings pointed, as long or longer than the tail; bill conic, acute, shorter or little longer than head, sparrow-like in cowbird and bobolink.

1. *DOLICHONYX*. Swainson. *Bobolinks*.

117. D. ORYZIVORUS. Sw. Called *Bobolink* in Northern States, *Reed Bird* in Middle States, and *Rice Bird* in the South. The male is in spring black, with buffy neck, the rump and shoulders ashy white, and the back streaked with black buff and ashy. The female and fall male are dull yellow birds, resembling some sparrows, but the acute tail feathers and large size readily distinguish them in any plumage. "In its black livery, only worn for a short time, the bobolink is dispersed over the meadows of the northern States to breed, and is a voluble, spirited songster. After the midsummer change, the reed bird or rice bird throngs the marshes in immense flocks with the blackbirds, has simply a chirping note, feeds on the wild oats, becomes extremely fat, and is accounted a great delicacy." (*Coues*.)

The bobolink is the pride of the prairie meadows of Northern Indiana, where it is an abundant summer resident, arriving the last of April, and going south in its plain brown traveling suit—Mr. and Mrs. and all the little Bob-o'-lincolns, now all of the same color—in great flocks the last of August. Not common in Marion county, although I have taken them as late as the last of June and am satisfied they were breeding. For an account of the "inner life" of this American rival of the English skylark, one has only to consult the sunny pages of Irving or the exquisite tribute of John Burroughs in "Birds and Poets." Nor have the poets missed him, even though the song sparrow and wood thrush, the water thrush and humming-bird, and many a meek and lonely sparrow songster have slipped through the finest meshes of the poet's net.

Robert of Lincoln is gaily drest,
  Wearing a bright black wedding-coat;
White are his shoulders and white his crest,
  Hear him call in his merry note:
    Bob-o'-link, Bob-o'-link,
    Spink, spank, spink;
  Look what a nice new coat is mine,
  Sure there never was a bird so fine.
    Chee, chee, chee.

Robert of Lincoln's Quaker wife,
  Pretty and quiet, with plain brown wings;
Passing at home a patient life,
  Broods in the grass while her husband sings:
    Bob-o'-link, Bob-o'-link,
    Spink, spank, spink;
Brood, kind creature, you need not fear
Thieves and robbers while I am here.
    Chee, chee, chee.

Bryant.

MOLOTHRUS. Swainson. *Cow Birds*.

118. M. ATER. Gray. Male iridescent black; head and neck glossy brown female much smaller, dusky brown; male L. 8; W. 4; T. 3. Abundant summer

resident from March to October; gregarious and polygamous; noted for its parasitic habits. "Like the European cuckoo, it builds no nest, laying its eggs by stealth in the nests of various other birds, especially wrens, warblers and sparrows; and it appears to constitute, furthermore, a remarkable exception to the rule of conjugal affection and fidelity among birds. A wonderful provision for the perpetuation of the species is seen in its instinctive selection of smaller birds as the foster parents of its offspring; for the larger bird receives the greater share of warmth during incubation, and the lusty young cowbird asserts its precedence in the nest; while the foster birds, however reluctant to incubate the strange eggs (their devices to avoid the duty are sometimes astonishing), become assiduous in their care of the foundlings, even to the neglect of their own young." (*Coues.*)

The same author vividly portrays the cow-bird about to lay. "She becomes disquieted, * * separates from the flock, and sallies forth to reconnoiter, anxiously indeed, for her case is urgent and she has no home. How obtrusive is the sad analogy! * * Now, however, comes her chance; there is the very nest she wishes, and no one at home. She disappears for a few minutes, and it is almost another bird that comes out of the bush. Her business done and troubles over, she chuckles her self-gratulations, rustles her plumage to adjust it trimly, and flies back to her associates. They know what has happened, but are discreet enough to say nothing—charity is often no less wise than kind." (See pages 180–186 of Coues' Birds of the Northwest.)

AGELÆUS. Vieillot. *Red-winged Blackbirds.*

119. A. PHŒNICEUS. V. Male glossy black (not iridescent); lesser wing coverts scarlet, with buffy and paler edgings; female dusky streaked; L. 9; W. 5; T. 4. Very common summer resident; in Northern Indiana it forages the corn-field with the crow blackbird, and at night enters the large marshes to roost in immense flocks. Neither species care for the "scare-crow" unless their numbers are constantly decimated by the farmer's shotgun.

XANTHOCEPHALUS. Bonaparte. *Yellow-headed Blackbirds.*

120. X. ICTEROCEPHALUS. Bd. Male black with white wing patch; head and neck rich yellow; female smaller, browner, with less yellow; L. 10; W. 5; T. 3½. A common summer resident in marshes in the prairie region. It keeps in the great marshes and is little known; "even those living next the marshes generally think it an uncommon bird." (*Nelson.*) An odd-colored bird.

STURNELLA. Vieillot. *Meadow Larks.*

121. S. MAGNA. Sw. Brownish and much streaked above; chiefly yellow below; a black crescent on breast; L. 10; W. 5; T. 3½. An abundant summer resident, a few remaining through mild winters, like the present.

A pleasing vocalist—the spirit of our spring meadows, crying in April "spring o' the year! spring o' the year." Burroughs.

SUB-FAMILY ICTERINÆ. Orioles.

Non-gregarious, insectivorous and frugivorous, strictly arboricole; of brilliant or strikingly contrasted colors and pleasing song; making elaborately woven pensile nests. The feet are weaker and the bill relatively longer and sharper than in the preceding group. Seven North American species.

ICTERUS. Brisson. *American Orioles.*

122. I. BALTIMORE. Daudin. *Baltimore Oriole* (so named from Lord Baltimore in allusion to his black coat and scarlet vest), *Golden Robin, Fire Bird.* Black; bend of wing, rump, most tail feathers, and under parts from the breast orange of varying intensity; female duller, olivaceous and yellowish; L. 7¾; W. 3⅔; T. 3. An abundant summer resident in orchards, streets, and woodland, conspicuous for its bright colors, spirited song and elaborately woven hanging nest.

123. I. SPURIOUS. Bon. *Orchard Oriole.* Male black; rump, bend of wing, and lower parts deep chestnut; female yellowish olive, quite small; young yellow, with various black or chestnut traces; L. 7; W. 3½; T. 3. A neat bird and sweet singer in orchards, parks, and skirts of woods; not as common here as the other.

Sub-family *Quiscalinae.* Crow blackbirds. Much like the marsh blackbirds in structure and habits, but with longer and slimmer bill, its top curved toward the end and cutting edges inflected. They have a crow-like look; the feet are large and strong, adapted to the ground where they walk or run, instead of leaping like most passerine birds. They build rude, bulky nests, and at their best are scarcely musical.

SCOLECOPHAGUS. Swainson. *Rusty Blackbirds.*

124. S. FERRUGINEUS. *Rusty Grackle.* Male glossy black and rusty in summer; female dusky and lustreless; bill slender; L. 9½; W. 4¾; T. 4. A common spring and fall migrant, frequenting the borders of streams and ponds in large numbers.

125. S. CYANOCEPHALUS. Cab. *Brewer's Blackbird.* Black with green lustre, head glossed with purple; female dusky; L. 10. A very rare visitant in common with the preceding. (*Nelson.*)

QUISCALUS. Vieillot. *Crow Blackbirds.*

126. Q. PURPUREUS. Licht. *Purple Grackle.* Iridescent black; lustre on head purplish, on body bronzy; L. 13; W. 5½; T. 5⅓. Common summer resident throughout the State. Though a nuisance in the cornfields, it is obviously of great service in destroying insects, but I doubt if this fact compensates for its wicked habit, not generally known among the farmers, of destroying many unfledged birds, especially the young robins. It watches the nest, and when the parents are away seizes an egg or a young one and is off. Mr. Gentry, who describes this crow-like vice, thinks its carnivorous propensity the natural outgrowth of its habit of sucking eggs.

FAMILY VXIII. CORVIDÆ.

(*The Crows and Jays.*)

Primaries 10; the first about half as long as second; nostrils usually concealed by tufts of bristly feathers which are branched to their tips; bill long and strong, usually notched; commissure not angulated; tarsus oscine, its sides separated from the plates in front by a groove either naked or filled in with small scales; voice usually harsh and unmusical. Ravens, crows, rooks, magpies, jays and their allies.

SUB-FAMILY. CORVIDÆ, THE CROWS.

CORVUS. Linnæus.

The crows are uniform lustrous black throughout, including the bill and feet; the tail is much shorter than the long, pointed wings.

127. C. CORAX. L. *Raven.* Feathers of throat narrow and lanceolate, stiffened, elongated, their outlines very distinct; L. 25; W. 17; T. 10. The raven is rare east of the Mississippi. It frequents the sand hills along the shores of Lake Michigan from October until spring, eating the dead fish thrown up by the lake.

128. C. AMERICANUS. Aud. *Crow.* Throat feathers short, broad, obtuse, with their necks blended; gloss of plumage purplish violet. L. 20; W. 13; T. 7. Common resident; rarer north, breeding in the scrub pines and roaming about in small flocks in the winter.

CYANURUS. Swainson. *Blue Jays.*

129. C. CRISTATUS. Sw. Blue; collar and frontlet black; grayish below; wings and tail clear blue-barred; outer tail feathers and secondaries tipped with white; L. 12; W. 5½; T. 5¾.

Very common resident. When protected, nests close to houses, and becomes very familiar. Jays are loquacious birds, non-migratory, principally vegetarians, eating seeds, hard fruits, and berries; they also suck eggs, despoiling many a pretty nest.

The Canada jay and magpie may have been winter visitants at an earlier day in the northern part of the State.

FAMILY XIX. TYRANNIDÆ.

Tarsus "clamatorial," the scutella extending around its back. Primaries 10; bill broad, triangular, depressed, abruptly hooked and notched at tip, with large rictal bristles; commissure nearly straight; nostril small, usually partly concealed. Mouth capacious; notes simple, often pleasant; changes of plumage slight; ours mostly olivaceous.

A large family of eighty genera, and more than three species; all American and mostly tropical. Most of them are pre-eminently insectivorous; they are, therefore, in our latitude migratory. May be known by their habit of standing perched upon some prominent outpost, waiting for their prey, with the wings and tail drooped ready for action. They dash into the air, catch the passing insect with a click of the bill and return to the same perch and wait for another.

TYRANNUS. Cuvier. *King Birds.*

130. T. CAROLINENSIS. Bd. *Bee Martin.* Shorter than wings; crown with concealed bright, yellowish orange crest (in adult.) Color blackish ash, white below; L. 8½; W. 4⅓; T. 3½. A common summer resident from May to early autumn. It has been seen to dive in the water (as kingfishers do) catching aquatic insects.

"The exquisite of the species, and the braggart of the orchard is the kingbird, a bully that loves to strip the feathers off its more timid neighbors, like the bluebird, that feeds on the stingless bees of the hive, the drones, and earns the reputation of great boldness by teasing large hawks, while it gives a wide berth to little ones."

Of its bee-eating, Dr. Coues says it "destroys a thousand noxious insects for every bee it eats."

MYIARCHUS. Cabanis. *Crested Flycatchers.*

131. M. CRINITUS. Cab. Scarcely crested; olivaceous, yellow below, with bright chestnut on wings and tail; T. 8¾; W. 4; T. 4.

The "wild Irishman" of the flycatchers—"a sandy-complexioned or leather-colored bird that prowls through the woods, uttering its harsh, uncanny note, and waging warfare upon its fellows." It is also noted for the habitual use of cast-off snake skins in the structure of its nest. (*Coues.*)

SAYORNIS. Bon. *Pewees.*

132. S. FUSCUS. Bd. *Phœbe-Bird. Pewit, Flycatcher.* Olive brown, head and tail darker; yellow below, more or less; bill black; L. 7; W. 3⅓; T. 3½. A common summer resident; one of the firstlings of the spring; readily known by its black bill.

This is a sweet-voiced bird, beloved of the poets. Trowbridge has studied its habits in the dark recesses of the woods it haunts, and immortalized it in a poem which is good poetry as well as good ornithology:

The listening Dryads hushed the woods;
The boughs were thick, and thin and few
The golden ribbons fluttered through;
Only a little forest brook
The farthest hem of silence shook;
When in the hollow shades I heard—
Was it a spirit or a bird?
Or, strayed from Eden, desolate,
Some Peri calling to her mate
Whom nevermore her mate would cheer?
"Pe-ri! pe-ri! peer."

To trace it to its green retreat
I sought among the boughs in vain;
* * * * * *
I quit the search and sat me down
Beside the brook, irresolute,
And watched a little bird in suit
Of sombre olive soft and brown,
Perched in the maple branches, mute;
With greenish gold its nest was fringed,
Its tiny cap was ebon-tinged,
With ivory pale its wings were barred,
And its dark eyes were tender-starred.
"Dear bird," I said, "what is thy name?"
And thrice the mournful answer came,
So faint and far, and yet so near:
"Pe-wee! pe-wee! peer!"

CONTOPUS. Cabanis. *Wood Pewees.*

133. C. BOREALIS. Bd. *Olive-Sided Flycatcher.* Olive brown, paler or yellowish below; tuft of white cottony feathers on sides very conspicuous; middle line of belly distinctly white; L. 7½. Migrant in May and September. Not common.

134. C. VIRENS. Cab. *Wood Pewee.* Olive brown above; pale or yellowish below; cottony tuft inconspicuous; lower mandible pale; wing band rusty or whitish; L. 6¼.

EMPIDONAX. Cabanis. *Least Flycatchers.*

135. E. ACADICUS. Bd.. *Small Green-crested Flycatcher.* Clear olive green; wing bands buffy; yellowish ring about eye; bill pale below; primaries an inch longer than secondaries. L. 6; W. 3. Summer resident; ordinarily in gloomy woods.

136. E. TRAILLII. Bd. *Traill's Flycatcher.* Olive brown, duller than the preceding; bill pale below; longest primary ⅔ inch longer than the secondaries. L. 5¾. A not common summer resident.

137. E. MINIMUS. Bd. *Least Flycatcher.* Olive gray; bill blackish below; longest primary but ½ inch longer than secondaries. L. 5; bill ½ inch. Common summer resident; prefers skirts of woods and hedge-rows.

138. E. FLAVIVENTRIS. Bd. *Yellow bellied Flycatcher.* Clear olive green; yellow below, becoming *bright* yellow on the belly; bill yellow below. L. 5¼. Common migrant about Chicago. (*Nelson.*) Uncommon about Cincinnati. (*Langdon.*)

ORDER B. PICARIÆ.

(*Picarian Birds.*)

This is a highly diversified group, the members of which have little in common except their want of resemblance to other birds.

The hind toe is small, sometimes wanting, occasionally elevated; wing coverts larger and in more numerous series than in the passeres. Second and fourth toes sometimes versatile; first and fourth toes with often less than the normal number of joints. Tarsus never oscine. Nature altricial.

KEY TO FAMILIES OF PICARIAN BIRDS.

I. Two toes forward and two back (except Picoides).

a. Tail of 12 rigid acuminate feathers, of which the other pair are short and concealed; bill stout and straight; nasal tufts usually present. (Woodpeckers.) . . . . . *Picidæ, XXV.*

aa. Tail of 8 to 10 long soft feathers; bill decurved; no nasal tufts. (Cuckoos.) *Cuculidæ, XXIV.*

II. Outer and middle toes coherent; bill stout and straight, longer than head. (Kingfishers.) . . . . . *Alcedinidæ, XXIII.*

III. Toes not coherent, nor two behind; wings long and pointed.

b. Bill tenuirostral, very slender, longer than head; 6 short secondaries, (Humming-birds.) . . . . . *Trochilidæ, XXII.*

bb. Bill with gape deep and wide, much shorter than head; secondaries more than 6.

c. Rictal bristles present; plumage lax and variegated; length 8 or more. (Whippoorwills, nighthawks.) . . . . . *Caprimulgidæ, XX.*

cc. No rictal bristles; plumage compact, of blended colors; tail feathers spinous; length 6 inches or less. (Chimney Swifts.) *Cypselidæ, XXI.*

FAMILY XX. CAPRIMULGIDÆ.

(*The Goat Suckers.*)

In these birds the bill is very short, the gape exceedingly deep and wide ("fissirastral"), reaching to below the eyes, and usually with prominent rictal bristles; wings long and pointed; plumage long and loose, oval-like; feet small and weak; tarsus short, partly feathered; toes somewhat webbed; hind toe slightly elevated; chiefly insectivorous, widely diffused; 100 or more species. They lay two lengthened, dark-colored, thickly spotted eggs on or near the ground, in stumps, etc. The feet are so short the birds do not perch in the usual way, but sit lengthwise of the branch or crouch on the ground. Sexes colored nearly alike; voice peculiar.

ANTROSTOMUS. Gould. *Whippoorwills.*

139. A. VOCIFERUS. Bon. *Nightjar.* Grayish; much variegated; pectoral bar and ends of outer tail feathers white in male, tawny in female; tail rounded and rictal bristles very long, which readily separates them from night hawks, in which the tail is forked and the rictal bristles inconspicuous. Common summer resident throughout the State. Its "solemn and prophetic" cry is well known; the bird is not often seen.

CHORDEILES. Swainson. *Night Hawks.*

140. C. VIRGINIANUS. Bon. *Bull Bat.* Blackish, variegated; a large wing spot, bar across tail and V-shaped blotch on throat—white in male, tawny or obscure in female. Abundant through temperate North America, flying at all times, though most active toward evening and in cloudy weather; they forage in companies for insects with rapid, easy flight; in the breeding season they fall through the air with a loud, booming cry.

FAMILY XXI. CYPSELIDÆ.

(*The Swifts.*)

Bill fissiostral; wings long, thin and pointed; secondaries short; no rictal bristles; tail feathers 10; plumage compact. In most the salivary glands are highly

developed, and their secretion is used as a glue in cementing the parts of the nest; in some the entire nest is made of inspissated saliva, and forms the "edible birds' nest" of Eastern countries. Small birds of warm countries, closely related to the humming bird, but having a superficial resemblance to the swallows. Genera 6 or 8; species about 50.

CHÆTURA. Stephens. *Chimney Swallows.*

141. CHÆTURA PELAGICA. Bd. *Chimney Swift.* Sooty brown; throat paler; tail feathers with the shafts spinous, projecting beyond the plumage. L. 5¼; W. 5; T. 2. An abundant summer resident from May to September last. "Like the swallows, which this bird so closely resembles, not only in its form but in its mode of flight, its food and twittering notes, it has mostly forsaken the ways of its ancestors, who bred in hollow trees, and now places its curious openwork nest of bits of twigs glued together inside disused chimneys." (*Coues.*)

FAMILY XXII. TROCHILIDÆ.

(*The Humming Birds.*)

Bill subulate, usually longer than the head, straight or curved; tongue capable of great protrusion; wings long and pointed; secondaries short, only 6 in number; feet very small, with sharp claws; smallest of all birds, and among the most brilliantly colored; all are American, most of them tropical; species 300 or more, in some 75 genera; 11 occur north of Mexico. Noted for their gorgeous coloring, due mainly to the iridescent glitter of their plumage. The females are duller and usually lack the metallic sheen which forms the gorget of the male. The food is either insects or nectar, or both. They are the most active of birds, spirited and at times pugnacious. The nests are exquisite affairs, often pensile, but saddled usually on a small bough, adorned and concealed by stucco work of moss or lichen, and containing not more than two white eggs.

TROCHILUS. Lin. *Ruby-Throated Humming Birds.*

142. T. COLUBRIS. L. Male metallic green above; a ruby red gorget; tail deeply forked, purplish; female without red, the tail variegated; L. 3¼. Common summer resident from May to September. I have seen them in flocks of 20 to 30 on the bloom of the wild crab apple, the females separate from the males; in 1878 all were females, while on the same trees in 1879 only the males were seen.

FAMILY XXIII. ALCEDINIDÆ.

(*The Kingfishers.*)

Head large; bill long, straight and strong; gape deep; wings long; tail short; feet syndactyle. Tail feathers 12. About one hundred species, mainly in Austra-

lia and the tropical parts of the Old World. Their habit is to sit and watch their prey, dart after it and seize it on the wing, and return to their perch to swallow it. The fish-eating members of the family nest for the most part in holes in the banks of streams.

CERYLE. Boie. *Kingfishers.*

143. C. ALCYON. Boie. *Belted Kingfisher.* Ashy blue above, a bluish band across breast; white below; female with sides and band across belly chestnut; tail barred with white; L. 13; W. 6; T. 3½. Common throughout North America; only forced south by the freezing of the waters. The oily and compact plumage resists the water into which they dive for their food.

FAMILY XXIV. CUCULIDÆ.

(*The Cuckoos.*)

Bill compressed, lengthened, decurved, without rictal bristles or nasal tufts. Tail long and soft, of eight to ten feathers. Tongue not extensible. Feet zygodactyle by reversion of the fourth toe. About two hundred species in various parts of the world. The European cuckoo (*C. canorus*) is famous, like our cowbird, for forcing other birds to incubate its eggs and raise its young.

COCCYGUS. Vieillot. *American Cuckoos.*

144. C. AMERICANUS. (L.) Bon. *Yellow-Billed Cuckoo.* Olive gray or drab. Bill yellow below; wings with much cinnamon red; middle tail feathers like the back; outer ones black with white tips; L. 12. Common summer resident from early May to September.

A shy, unfamiliar bird in the tops of high, open woods. The bird utters the notes *koo-koo-koo*, repeated indefinitely, during the changes in the air preceding rain, and so is known as the rain crow. Their food is mainly large winged insects, though, like the jay and crow blackbird, they rob other birds of their eggs. The bird sits as soon as the first egg is laid, and so the nest may contain fresh eggs, those partly developed, others just hatched and nearly full-fledged young. (*Audubon.*)

145. C. ERYTHROPHTHALMUS. Bd. *Black-Billed Cuckoo.* Olive gray or drab. Bill chiefly black; wings with little or no reddish; tail feathers all brownish; slightly smaller than the preceding; L. 11½. Summer resident; not as common as the above. Habits are substantially similar, and the two species are confounded often by unscientific observers.

FAMILY XXV. PICIDÆ.

(*The Woodpeckers.*)

Bill stout, usually straight, with the tip truncate or acute, fitted for hammering or boring into wood. Tongue long, flattish, barbed, capable of great protrusion,

adapted for securing insects (except in Sphyrapicus); hyoid apparatus peculiar, its horns generally quite long, curving around the skull behind. Feet zygodactyle, outer toe permanently reversed; hind toe present (except in Picoides); claws compressed, sharp and strong. Tail featherr 12, rigid and acuminate, outer pair short, concealed; tail never forked; nasal tufts usually present.

Chiefly arboreal; all (except Sphyrapicus, which is truly a "sap-sucker") are pre-eminently insectivorous, and hence they are of the greatest service to the farmer. Voice loud and often harsh. Colors generally bright, the male having almost always red on the head; sexes usually slightly different. Species 250; abundant almost everywhere.

"They dig insects out of trees, and so are eminently beneficial to the farmer and fruit grower. Contrary to a general impression, their boring does not seem to injure fruit trees, which may be riddled with holes without harmful result. The number of noxious insects these birds destroy is simply incalculable; what little fruit some of them steal is not to be mentioned in the same connection, and they deserve the good will of all." (*Coues.*)

HYLOTOMUS. Baird. *Black Woodcocks.*

146. H. PILEATUS. Bd. *Pileated Woodpecker.* Conspicuously crested; black; white streak down neck; crest and cheek patch scarlet in male; cheeks and front of crest black in female; L. 18; W. 9½; T. 7. Liable to "turn up" anywhere in North America in heavy timber.

PICUS. L. *Spotted Woodpeckers.*

147. P. VILLOSUS. L. *Hairy Woodpecker. Big Sapsucker.* Spotted and lengthwise streaked and banded; back black, with a long white stripe; outer tail feathers wholly white; a scarlet nuchal band in male only. Resident, but more abundant in winter than in summer, in Northern Indiana.

148. P. PUBESCENS. L. *Downy Woodpecker. Little Sapsucker.* Much smaller; L. 6½; outer tail feathers black and white, barred; otherwise precisely like the preceding. Abundant in all wooded places.

SPHYRAPICUS. Baird.

149. S. VARIUS. Bd. *Yellow-Bellied Woodpecker.* Tongue not extensible; the tip brushy; hyoid bones short; black and white above; black on breast; chiefly yellowish below; white wing patch; crown red in adult; scarlet in female; L. 8¼.

This bird is an exception to the rule that the woodpeckers work in the interest of the fruit-grower. He is a true "sap-sucker"; the hairy and downy woodpeckers do not deserve the name. The yellow-bellied sap-suckers eat fruits and insects; they injure fruit trees by stripping off the outer bark and eating the soft inner bark (*cambium layer*). There is no danger from our species, however, as it is mainly a migrant from March to May and in October, and is not very abundant. I have seen it oftenest in tall, damp beech woods.

CENTURUS. Swainson. *Red-Bellied Woodpeckers.*

150. C. CAROLINUS. Bon. Grayish; much barred above with black and white; crown and nape crimson in male; crown ashy in female; L. 8¾. A com-

mon summer resident in Marion county; plentiful in wooded districts; rarer north in the prairie regions.

MELANERPES. Swainson. *Red-Headed Woodpeckers.*

151. M. ERYTHROCEPHALUS. Sw. Body lustrous blue black; rump, secondaries and under parts white; head and neck grayish in young, but crimson in both sexes when adult; L. 9. Resident through the State; abundant in summer, much less so in winter. A familiar bird in garden orchards as well as in woods; conspicuous as a barber's pole. It was this bird, flitting like a tri-colored scarf in the foliage, that kindled the Scottish rhymster's enthusiasm, so that instead of Wilson the poet, we have Wilson the ornithologist. In the South I hear this bird called the "woodchuck."

COLAPTES. Swainson. *Yellow-Shafted Flickers.*

152. C. AURATUS. Swain. *High-Holer. Yarup. Golden-Winged Woodpecker. Yellow-hammer.* Head ashy, with red nuchal crescent; back olivaceous, barred with black; rump white; below pinkish brown, shading into yellowish; a black crescent on breast and numerous round black spots; shafts and under surface of quills golden yellow; male with a black maxillary patch; L. 12½. Common summer resident north; in the southern half of the State many remain through the winter.

The yellow-hammer is scarcely a woodpecker at all in his habits of feeding, taking to the ground with the robins, where it gets the best part of its subsistence. It is more migratory than most of the other species, which, owing to the nature of their food, as well as the hardy nature of the family, are pretty thoroughly localized. The red-bellied and red-headed, as well as the present species, are irregular migrants in most regions.

ORDER BB. PSITTACI.

(*The Parrots.*)

Bill enormously thick, cered at base, and strongly hooked. Outer toe directed backward, as in Woodpeckers. Tongue short, fleshy; upper jaw unusually movable. Plumage often brilliant. In all warm regions; about 350 species, of which nearly half are American. Ours fall in the family *Aridæ*, the macaws, which are without crest and have the tail long, wedge-shaped or graduated.

CONURUS. Kuhl. *Parroquets,*

153. C. CAROLINENSIS. (L.) Kuhl. *Carolina Parroquet.* Green; head and neck yellow; face red; wings variegated with blue and yellow; bill white; feet flesh color; L. 13; W. 7½; T. 6. Southern; formerly north to the great lakes; but of late years has receded from even the Carolinas; it is abundant in Florida. They are altricial, gregarious and frugivorous.

Dr. Rufus Haymond, of Franklin county, states in 1856 that they were formerly very numerous along the White river, but had not been seen for several years. Dr. H. M. Bannister, of Evanston, Ill., has seen it in that vicinity. Dr. Wheaton,

of Columbus, Ohio, admits it to his list of Ohio birds. They can not be regarded as an Indiana bird, although they may possibly "make their appearance from the Southwest some day when we least expect them," as in the case of the black vulture, a Southern species first recorded at Cincinnati by Mr. Langdon, although formerly considered an Ohio bird on the authority of Audubon. On the lower St. Johns, Fla., they are caught and slaughtered by thousands, and the species will doubtless soon be exterminated.

ORDER C. RAPTORES.

(*The Birds of Prey.*)

Bill powerful, cered at base, strongly hooked at the end. Feet never zygodactyl; fourth toe sometimes versatile. Primaries 10; tail feathers usually 12. Altricial, but the young downy at birth. Carnivorous birds, usually of large size and great strength, found in every part of the world.

FAMILY—STRIGIDÆ.

(*The Owls.*)

Head very large; short and broad; the eyes directed to the front and with a series of peculiar radiating feathers. Loral feathers antrorse, often long and dense; ear-like tufts of feathers often present. Plumage soft and lax, rendering the flight almost noiseless; the colors are much blended and mottled. External ear large, often with a movable flap. Outer toe versatile; claws sharp, strong and long. Chiefly nocturnal. Sexes colored alike, female usually the larger.

A cosmopolitan family; most of the species have a wide range. Species about 150, in about 40 genera. Owls pass the day in hollow trees or dusky retreats; at night they come forth, and with cat-like stealth capture their prey alive—small mammals, birds, reptiles, insects, and even fish. After a meal, what is not digestible—hair, bones, feathers, etc.—is ejected from the mouth, as in most other preying birds, in the shape of a round pellet. The nest is rude; the eggs several, white, sub-spherical. Their lugubrious outcries, screechings and hootings, have given them place in the literature of superstition, and they have been good game for the poets. "Bird of the silent wing and expansive eye, grimalkin in feathers, feline, mousing, haunting ruins and towers, and mocking the midnight stillness with thy uncanny cry."

When icicles hang by the wall,
  And Dick the shepherd blows his wail,
And Tom bears logs into the hall,
  And milk comes frozen in the pail;
When blood is nipped, and ways be foul,
Then nightly sings the staring owl,
    Tu-who
Tu-whit! tu-who! a merry note,
While greasy Joan doth keel the pot.

—*Love's Labor's Lost.*

When cats run home and light is come,
And dew is cold upon the ground,
And the far-off stream is dumb,
And the whirring sail goes round,
And the whirring sail goes round;
Alone and warming his five wits,
The white owl in the belfry sits.
—*Tennyson.*

KEY TO GENERA AND DESCRIPTIONS OF SPECIES.

* Tarsus naked or scant feathered, facial disk perfect; no ear tufts; iris black.

STRIX. Linnæus. *Barn Owls.*

154. STRIX FLAMMEA. L. Var. PRATINCOLA. (Bon.) Ridg. Face elongated; reddish or tawny, much variegated. L. 17; W. 13; T. 5½. Southerly; a pair were trapped near Chicago by my friend, Charles Smith, some years since. (Referred to by Nelson.)

** Tarsus fully feathered.

† Head with ear-tufts; iris yellow.

‡ Tail ⅔ as long as wings; over 18 inches.

BUBO. Dumreil. *Great Horned Owls.*

155. B. VIRGINIANUS. Bon. Black, gray and buffy, mottled and barred; usually with a white collar; ear-tufts large; their feathers black; L. 22; W. 16; T. 2. Abundant resident through the State; rarest north. "Yields only to the great gray owl in size, and to none in spirit."

‡‡ Tail about half the length of wings; length less than 18 inches.

a. Bill pale; length less than 12.

SCOPS. Savigny. *Screech Owls.*

156. S. ASIO. Bon. *Red Owl, Gray Owl.* Grayish, speckled and barred, or with the grayish replaced by bright reddish; these two different styles of plumage bearing no relation to age, sex or season; L. 10; W. 7; T. 3½. Common resident. This owl often strays into cities and becomes confused, and is easily taken alive. The same is true of the saw-whet owl. Several of the former were thus taken in Indianapolis in 1878.

aa. Bill dark; length more than 12 inches.

OTUS. Cuvier. *Eared Owls.*

157. O. VULGARIS. (L.) Var. WILSONIANUS. Allen. *Long-Eared Owls.* Ear-tufts well developed, of 8 to 12 feathers; outer primary emarginate; much variegated; L. 15; W. 12; T. 6. Not uncommon resident. (*Nelson.*)

158. O. BRACHYOTUS. Steph. *Short-Eared Owl.* Ear tufts inconspicuous; two other primaries emarginate; L. 15; W. 13; T. 6. Our most abundant owl. Comes from the North in November in large numbers and ranges over the northern part of the State. Remain concealed in the morning, and commences scouring the meadows about two o'clock. (*Nelson.*) Harmless and easily tamed. Quite common in Marion county. Rare resident near Cincinnati. (*Langdon.*)

††Head without evident ear tufts.

b. Tail about half as long as wings; iris yellow; length less than twelve inches.

NYCTALE. Brehm. *Saw-Whet Owls.*

159. N. ACADICA. Bon. *Acadian Owl.* Above chocolate brown, spotted with white; tail with white cross bars; small; L. 8; W. 5½. Not uncommon; several species were known to be taken in the most frequented resident streets in Chicago. Their owl wisdom can not solve the riddle of the town.

bb. Tail two-thirds length of wing; length 18 or more.

c. Pure white, with dark markings; toes hidden by long feathers; bill black; iris yellow.

NYCTEA. Steph. *Great Snow Owls.*

160. N. SCANDIACA. Newt. *Snowy Owl.* Pure white, more or less barred with blackish; L. 23; W. 17; T. 10. Common winter resident in the vicinity of the lake from November to April; irregularly to Indianapolis. Hunts by day. I have seen one chase a dog about the pasture; both seemed to enjoy the sport.

cc. Grayish; much barred; complete facial disk; bill yellow.

SYRNIUM. Savigny. *Barred Owls.*

161. S. NEBULOSUM. Boie. *Barred Owl.* Iris black; toes not concealed; olive brown, barred with white above; belly streaked; L. 18; W. 14; T. 9. Rare in the prairie region; rather common resident in the timbered portion of the State.

162. S. CINEREUM. Aud. *Great Gray Owl.* Toes concealed; iris yellow; cinereous brown above, waved with white; belly barred; largest of our owls; L. 30; W. 18; T. 12. A rare winter visitant in the north of the State. (*Surnia ulna.* Bp. *Vor hudsonica*, Ridg., the *Day Owl* or *Hawk Owl*, is a rare winter resident about Chicago; a brown owl much spotted and variegated, about sixteen inches long; the most diurnal of the family, ranging abroad at all times, and the most hawk-like of the owls.)

FAMILY FALCONIDÆ.

(*The Falcons.*)

Eyes lateral, eyelids with lashes, no complete facial disk; toes always naked, and usually tarsus also; hind toe not elevated; head fully feathered; no ear tufts; base of stout, strongly hooked bill, not hidden by feathers; claws very strong and sharp; plumage usually of blended colors, barred or streaked; changes considerable; females usually the larger. Genera fifty; species three hundred, abounding everywhere. They hold the same relation to birds that carnivorous beasts do to other mammals. There are several allied groups in the family. Carrion hawks, marsh harriers, fish hawks, kites, buzzards, hawks proper and true falcons comprise these groups. Their mode of life necessarily renders them non-gregarious; like other preying birds, they are not strictly migratory; the voice is loud and harsh; the nests vary much in the family; the eggs are, as a rule, blotched, and not as spherical as those of owls. Their habits are too well known to require further description here.

KEY TO THE GENERA AND DESCRIPTIONS OF THE SPECIES OF INDIANA HAWKS.

I. Tarsus feathered to the toes.

a. Tarsus with a narrow unfeathered strip behind, tail less than 12:

ARCHIBUTEO. Brehm. *Squirrel Hawks.*

163. A. LAGOPUS. (Brum.) Var. SANCTI-JOHANNIS. (Gm.) *Rough-Legged Hawk. Black Hawk.* Chiefly whitish, but sometimes entirely black; L. 24; W. 18; T. 10. A shy but common migrant north from October to March. One in the black plumage was captured alive near Chicago, and throve until the hot days of summer, when it succumbed. Of it Nelson says: "For noble presence and piercing eye this bird has few equals among our falconidæ. The specimen bore a striking resemblance to a golden eagle."

aa. Tarsus entirely feathered; length of tail 12 or more:

AQUILA. Mehring. *Golden Eagles.*

164. A. CHRYSÆTUS. L. Glossy purplish brown; head and neck golden brown; quills blackish; L. 36; W. 25; T. 16. Not uncommon during the winter; formerly nested throughout the State. Will feed on carrion. A pair in December, 1874, took offense at a young hunter, Mr. T. Morris, of Englewood, Ill., and attacked him, darting within arm's length. He shot one dead and captured the other alive, shooting off the primaries of one wing. The craw of the dead eagle contained carrion.

II. Tarsus scutellate in front only.

b. Toes not webbed at all; neck feathers lanceolate, white in the adult:

HALIÆTUS. Savigny. *Bald Eagles.*

H. LEUCOCEPHALUS. (L.) Dark brown; head, neck and tail white after the third year. Immature birds are larger than the adults; such an one was the famous "Bird of Washington," figured and described by Audubon as a new species. A common North American bird; piscivorous, stealing its fish from the fish-hawk; "otherwise notorious as the emblem of the Republic." (*Dr. Coues.*)

Common winter resident; more abundant in spring and fall; "breeds sparingly." (*Nelson.*) It may be well to note here that there are but two eagles in America—this and the golden eagle.

bb. Toes somewhat webbed at base.

c. Tarsus feathered half way down in front, the feathers scarcely separated behind.

ASTUR. Lacepede. *Goshawks.*

165. A. PALUMBARIUS. (L.) Var. ATRICAPILLUS. Coues. Slate blue, with white superciliary stripe; tail with four dark bars; L. 24; W. 14; T. 11. A northern hawk, formerly a common winter resident north; now rare. President Marcy, of Northwestern University, found them abundant about Evanston, Ill., in the winter of 1870–71. (*Nelson.*)

cc. Tarsus feathered less than one-third down in front, the feathers widely separated:

ACCIPITER. Brisson.

166. A. FUSCUS. Bon. *Sharp-Shinned Hawk.* General color dark brown; L. 12; W. 7; T. 6. An abundant hawk during the spring and fall movements of these birds. (*Nelson.*)

167. A. COOPERI. Bon. *Cooper's Hawk, Chicken Hawk.* Larger than the preceding; L. 18; W. 10; T. 8. Common summer resident, April to October.

II. Tarsus scutellate in front and behind.

d. Face with a slight ruff; upper tail coverts white:

CIRCUZ. Locepede. *Marsh Harriers.*

168. C. CYANEUS. Var. *Hudsonius.* (L.) Coues. Pale bluish or brown; rump and under parts whitish; L. 18; W. 15; T. 9. Common on the marshes and prairies north during the migrations. Rare about Cincinnati. (*Langdon.*)

dd. No ruff; 3 or 4 outer primaries emarginate; rump not white:

BUTEO. Cuvier. *Buzzards.*

169. BUTEO BOREALIS. V. *Hen Hawk, Red-Tailed Buzzards.* Four outer primaries emarginate on inner web; dark brown; much barred and streaked; tail bright chestnut red above. L. 23; W, 15½; T. 8½. The most common resident of the larger hawks north; not as common in Central Indiana as the next.

170. BUTEO LINEATUS. Jard. *Red-shouldered Buzzard.* Dark reddish-brown, variegated; bend of wing orange brown; L. 22; W. 14; T. 9. Smaller than the red tailed, although nearly as long; primaries emarginate as in above. Common during the migrations. Most of the hawks described, and others to follow, have their main autumnal movements in late September and early October. I have, in company with my friend E. W. Nelson, U. S. A., whose notes are so often referred to here, watched them passing around the bend of the lake, south of Chicago, and as Mr. Nelson says: "A statement of the numbers which pass in a single day, to one who has not observed them, would be received with incredulity. Choosing a day when there is a strong south or south-west wind, the hawks commence moving early in the morning, and continue flying the entire day, and so numerously that taking a stand at a good point one would have from one to fifty hawks in view, with but few intermissions throughout the day. Among these occur all the migrants, but by far the greater number consist of the smaller species."

171. BUTEO SWAINSONI. Bon. Gray, variously streaked; dark area on throat and breast; three outer primaries emarginate; tail with narrow, dark bars; variable; L. 20; W. 16. Of rare occurrence north; breeds in southern Illinois. (*Nelson.*)

172. BUTEO PENNSYLVANICUS. Bon. *Broad-winged Hawk.* Brown above, whitish or fulvous below, variously streaked and barred; dark cheek patches; tail with broad dark bands and narrow pale ones, white tipped; L. 18; W. 11; T. 7. A stout, handsome hawk, though small; summer resident; breeds. (*Nelson.*)

IV. Tarsus reticulate all round.

e. Upper mandible toothed; under notched; nostrils circular.

FALCO. L. Falcons.

173. FALCO COMMUNIS. Gm. *Duck Hawk.* Blackish ash with paler waves; below whitish; barred; black cheek patches. L. 16; W. 13; T. 7. Not abundant, but generally distributed.

174. FALCO COLUMBARIUS. L. *Pigeon Hawk.* Ashy blue or blackish above; variegated below; two primaries emarginate. L. 13; W. 8; T. 5.

175. FALCO SPARVERIUS. L. *Sparrow Hawk.* Back tawny; wings bluish and black; seven black blotches about head; tail chestnut, with a broad black band in male; below white or tawny. Abundant in most parts of the State. This graceful little hawk is quite plentiful during the summer and occasionally seen in the winter. Breeds in deserted woodpeckers' holes in sycamore trees, usually about forty or fifty feet from the ground. (*Langdon.*) This bird is worthy a quotation, and we have one ever at hand if we follow the pleasant pages of Dr. Coues in Birds of the Northwest: "Too small of frame, though stout-hearted enough, I warrant, to commit depredations in the farmyard, subsisting on small insectivorous birds, it is true, but also destroying countless field mice and noxious insects, he is to be held a benefactor to the agriculturist. * * * No hawk is more abundant in the West. Go where we may, in summer or winter, we shall before long see him hovering over the fields, or perched, erect and motionless, on his outpost, sweeping the ground below with keen, audacious eye. It is treacherous calm; the ardor of the falcon grows with restraint. An unlucky sparrow flirts in yonder bush, and gives a flippant chirp—whish! and it is all over. Poor little rollicking sparrow! This is no easier for *you* to bear because it is a 'law of nature,' as we say. Who is ever quite ready for the last? What pang is taken away when the cry it extorts is drowned in a sea of like lamentation? We theorize best before the falcon's talon strikes."

ee. Claws all of same length, rounded beneath; tibial feathers close; plumage compact, without aftershafts.

PANDION. Savigny. *Ospreys.*

176. P. HALIÆTUS. (L.) Sav. *Osprey. Fish Hawk.* Dark brown; head, neck and under parts mostly white; feet very large; plumage oily, resisting water; compact, imbricated. L. 24; W. 20; T. 10. This remarkable hawk is not uncommon during March or April, and again in September and October, along the lake shore. It has been already mentioned as the bird which the American eagle robs of its lawful game. On this account the generic name of the eagle was doubtless selected as the specific name of the osprey.

FAMILY CATHARTIDÆ.

(*The New World Vultures.*)

Head and part of neck bare. Eyes lateral, not overhung. Ears small. Bill lengthened, weak, and but little hooked; nostrils perforate. Wings very long and strong, giving a strength and grace of flight scarcely excelled. Hind toe short and elevated; front toes long, somewhat webbed, with rather weak and straightish claws. Large turkey-like raptores, without the strength and spirit of the hawks

and owls; "voracious and indiscriminate gormandizers of carrion and animal refuse of all sorts, hence efficient and almost indispensable scavengers in the warm countries where they abound." (*Coues.*) Two species, the condor and the California vulture, are among the largest birds of flight in the world. All are American, the Old World vultures (Vulturinæ) being vulture-like hawks. Genera five, species six or eight.

RHINOGRYPHUS. Ridgway. *Turkey Buzzards.*

177. R. AURA. (L.) Ridg. *Turkey Buzzard.* Black lustrous above; skin of head and neck red; wings very long; a tuft of bristles in front of eye. L. 30; W. 22; T. 12. Common summer resident except in the prairie region. Protected by State statute as a public scavenger.

CATHARISTA. Vieillot. *Carrion Crows.*

178. C. ATRATA. (Bart.) Gray. *Carrion Crow.* Uniform dull black; wings short; skin of neck corrugate; no bristles in front of eye. L. 24; W. 17; T. 8. N. C. to Mexico, rarely straying northward. Included in this list as it has been taken by Mr. Langdon near Cincinnati and seen by him on several previous occasions *in winter* in the same vicinity.

ORDER D. COLUMBÆ.

(*The Doves.*)

Bill straight, compressed, the horny tip separated by a constriction from the soft part. Nostrils opening beneath a soft turmid membrane. Hind toe usually on a level with the rest, the others usually not webbed. Tarsus mostly scutellate in front, elsewhere reticulate, the plates soft. Head small. Plumage soft, compact, the feathers very loosely inserted. Altricial; monogamous.

FAMILY COLUMBIDÆ.

(*The Doves.*)

Wings long, pointed. Tail never forked, of 12 or 14 feathers; male with neck iridescent. Species about 300, found in most regions, but most abundant in the East Indies. Besides the following, quite a number of species occur in the Southern States. The common domesticated dove (Columba livida) is a fair type of the family.

ECTOPISTES. Swainson. *Passenger Pigeons.*

179. E. MIGRATORIUS. (L.) Sw. *Wild Pigeon.* Bluish, with reddish and violet tinges, reddish below; L. 17. N. A. abundant; gregarious. Nests in Northern Michigan and occasionally in Northern Indiana. A well-known game bird.

ZENÆDURA. Bonaparte. *Mourning Doves.*

180. Z. CAROLINENSIS. (L.) Bon. *Mourning Dove. Turtle Dove. Carolina Dove.* Brownish olive, glossed with blue and wine color; plumage with metallic luster. L. 12. U. S. abundant. Common summer resident from March to October. Occasionally seen even in winter. Very gentle, sometimes breeding in door-yards and showing no timidity, eating with the chickens, etc.

NOTE.—The remaining species are of more importance to the sportsman than to the horticulturist, and the specific diagnoses are therefore omitted.

ORDER E. GALLINÆ.

(*The Gallinaceous Birds.*)

FAMILY MELEAGRIDÆ. Turkeys.

181. MELEAGRIS GALLAPAVO. L. *Wild Turkey.* Occasionally seen in Marion county.

FAMILY TETRAONIDÆ. Grouse.

182. CUPODONIA CUPIDO. Bd. *Prairie Chicken.* Common in the prairie region.

183. BONASA UMBELLUS. Steph. *Partridge. Ruffled Grouse.* Still found in wooded regions. Rare.

FAMILY PERDICIDÆ. Partridges.

184. ORTYX VIRGINIANUS. Bon. *Quail. Bob White.*

ORDER F. LIMICOLÆ.

(*The Shore Birds.*)

FAMILY CHARADRIIDÆ. Plovers.

185. SQUATAROLA HELVETICA. Cuv. *Black-Bellied Plover.* Spring and fall migrant. Not common.

186. CHARADRIUS FULVUS. Var. VIRGINICUS. Coues. *Golden Plover.* Abundant migrant.

187. ÆGIALITIS VOCIFERUS. Cass. *Killdeer Plover.* Common summer resident March to October.

188. ÆGIALITIS SEMIPALMATUS. Cab. *Semipalmated Plover.* Not common; migrant.

189. ÆGIATILIS MELODUS. Cab. *Piping Plover.* Common summer resident along the shore of Lake Michigan April to last of September.

FAMILY HÆMATOPODIDÆ. Turnstones.

STREPSILAS INTERPRES. (Tim.) *Turnstones.* Common migrant along Lake Michigan.

FAMILY RECURVIROSTRIDÆ. Avocets.

190. RECURVIROSTRA AMERICANA. Gm. Avocets. A rare migrant.

191. HIMANTOPUS NIGRICOLLIS. Vieill. Stilt. *Long Shanks.* An exceedingly rare visitant. (*Nelson.*)

FAMILY PHALAROPODIDÆ. Phalaropes.

192. STEGANOPUS WILSONI. Coues. *Wilson's Phalarope.* Common resident Northern Indiana.

193. LOBIPES HYPERBOREUS. Cuv. *Northern Phalarope.* Rather rare migrant. (*Nelson.*)

194. PHALAROPUS FULICARIUS. Bon. *Red Phalarope.* Exceedingly rare during the migrations. (*Nelson.*)

FAMILY SCOLOPACIDÆ. Snipe.

195. PHILOHELA MINOR. Gray. *Woodcock.* Rather common summer resident.

196. GAI LINAGO WILSONI. Bon. *Wilson's Snipe.* Abundant migrant.

197. MACROHAMPHUS GRISEUS. Leach. *Red-Breasted Snipe.* Rather common migrant.

198. MICROPALAMA HIMANTOPUS.. Bd. *Stilt Sandpiper.* Of rare occurrence. (*Nelson.*)

199. EREUNETES PUSILLUS. Cass. *Semipalmated Sandpiper.* Very abundant migrant.

200. TRINGA MINUTILLA. V. *Least Sandpiper, Peep.* Common migrant, but not so numerous as the preceding.

201. TRINGA BAIRDII V. *Baird's Sandpiper.* An uncommon migrant in May and August. (*Nelson.*)

202. TRINGA MACULOTA V. *Grass Snipe.* Spring and fall migrant; often in large flocks.

203. TRINGA BONAPARTEI, Schl. *Bonaparte's Sandpiper.* Rather uncommon migrant. (*Nelson.*)

204. TRINGA ALPINA. Var. AMERICANA. Cass. *Red-backed Sandpiper.* Abundant migrant.

205. TRINGA CANUTUS. L. *Red-breasted Sandpiper.* A regular migrant, passing north in May. This (as also T. *maritima*, one specimen) is an inland as well as "maritime" species. (*Nelson.*)

206. CALIDRIS ARENARIA. L. *Sanderling.* Abundant migrant along the lake shore; rare central and south.

207. LIMOSA FEDOA. L. *Marbled Godwit, Marlin.* Migrant, not uncommon about the lake.

208. LIMOSA HUDSONICA. Sw. *Hudsonian Godwit.* Not very rare about the lake.

209. TOTANUS SEMIPALMATUS. Temm. *Willet.* Rare summer resident on marshes and wet prairies. (*Nelson.*)

210. TOTANUS MELANOLEUCUS. Gmel. *Greater Yellow-Legs.* Common migrant and regular summer resident north, breeding about the river marshes. (*Nelson.*)

211. TOTANUS FLAVIPES. Gmel. *Lesser Yellow-Legs.* A rather common spring and fall migrant, a few remaining to breed about the lake.

212. TOTANUS SOLITARUS. Wils. *Solitary Tattler.* Common migrant spring and fall.

213. TRINGOIDES MACULARIUS. L. *Spotted Tattler, Spotted Sandpiper. Teeter-Tail.* Common summer resident.

214. ACTITURUS BARTRAMIUS. (Wils.) *Field Plover.* Common summer resident.

215. TRYNGITES RUFESCEUS. V. *Buff-Breasted Sandpiper.* Very rare migrant. (*Nelson.*)

216. NUMENIUS LONGIROSTRIS. Wils. *Long-Billed Curlew.* Uncommon migrant and rare summer resident. (*Nelson.*)

217. NUMENIUS HUDSONICUS. Loth. *Jack Curlew.* Rare migrant with the preceding.

218. NUMENIUS BOREALIS, Loth, *Esquimaux Curlew.* In wet prairies north, migrating with the golden plover.

ORDER G. HERODIONES.

(*The Herons and Storks.*)

FAMILY TANTALIDÆ. The Ibises.

219. TANTALUS LOCULATOR. L. *Wood Ibis.* "North to Ohio." (*Coues.*) Undoubtedly in Southern Indiana as in Illinois.

220. IBIS FALCINELLUS. Aud. *Glossy Ibis.* A very rare visitant about Chicago. (*Nelson.*)

FAMILY ARDEIDÆ. The Herons.

221. ARDEA HERODIAS. L. *Great Blue Heron.* In March and October during the migrations.

222. ARDEA EGRETTA. Gm. *Great White Egret, White Heron.* Not uncommon. Summer visitant.

223. ARDEA CANDIDISSIMA. Gm. *Little White Egret, Snowy Egret.* Not as common as the other.

224. ARDEA CÆRULEA. L. *Little Blue Heron.* Not uncommon in Southern Illinois, aud probably in Southern Indiana.

225. ARDEA VIRESCENS. L. *Green Heron.* "*Fly-up-the-creek.*" Very common summer resident, even breeding in orchards. (*Langdon.*)

226. NYCTIARDEA GRISEA. Var. NÆVIA. Allen. *Night Heron, Qua-Bird.* Common; breeds in great numbers near Waukegan, Ill.; also in the Calumet marshes. (*Nelson.*)

227. BOTAURUS MINOR. Boie. *Bittern, Indian Hen.* Common summer resident everywhere in marshes and sloughs north; spring and summer migrant south.

228. ARDETTA EXILIS. Gray. *Least Bittern.* This beautiful species is a common summer resident in marshes and sloughs north.

ORDER H. ALECTORIDES.

(*The Cranes and Rails.*)

FAMILY GRUIDÆ. The Cranes.

229. GRUS AMERICANUS. L. *White or Whooping Crane.* Rare migrant; formerly abundant.

230. GRUS CANADENSIS. L. *Sand-Hill Crane.* Formerly breeding abundantly in the large marshes of the State; now rare.

FAMILY RALLIDÆ. The Rails.

231. RALLUS ELEGANS. Aud. *King Rail.* Summer resident in the prairies north, and occurring through the State.

232. RALLUS VIRGINIANUS. L. *Virginia Rail.* Common resident north, rarer south.

233. PORZANA CAROLINA. Cab. *Carolina Rail.* Exceedingly abundant along the borders of prairie sloughs and marshes; lays 8 to 14 eggs. (*Nelson.*)

234. PORZANA NOVEBORACENSIS. Cass. *Little Yellow Rail.* Not very rare north; arrives in May. (*Nelson.*)

234. PORZANA JAMAICENSIS. Cass. *Little Black Rail.* Breeds in the Calumet marshes; not very rare. (*Nelson.*)

236. GALLINULA GALEATA. Licht. *Florida Gallinole.* Abundant summer resident in marshes and the larger prairie sloughs. (*Nelson.*)

237. PORPHYRIO MARTINICA. (Tenn.) *Purple Gallinule.* A rare migrant about Cincinnati. (*Langdon.*) Very rare visitant. (*Nelson.*)

238. FULICA AMERICANA. Gmel. *Coot. Mud Hen.* Exceedingly abundant, breeding north. Common migrant. (*Langdon.*)

ORDER I. LAMELLIROSTRES.

(*The Anserine Birds.*)

FAMILY ANATIDÆ. The Ducks.

239. CYGNUS BUCCINATOR. Rich. *Trumpeter Swan.* Far from common during the migrations.

240. CYGNUS AMERICANUS. Sharp. *American Swan.* Rather common during the migrations.

241. ANSER ALBIFRONS. Var. GAMBELI. Coues. *White-fronted Goose.* Comes from the north in October and disperses over the State. Abundant.

242. ANSER CÆRULESCENS. L. *Blue Goose.* Not uncommon; often seen in the Chicago market.

243. ANSER HYPERBOREUS. Pallas. *Snow Goose.* Generally distributed during the migrations throughout the State.

244. BRANTA CANADENSIS. Var. CANADENSIS. L., and

245. BRANTA CANADENSIS. Var. HUTCHINSII. Coues. Both varieties are common migrants; formerly bred in the State.

246. ANAS BOSCHAS. L. *Mallard. Tame Duck.* Abundant migrant and summer resident. Original of the common domestic duck; hybrids of this species with others are described.

247. ANAS OBSCURA. Gmel. *Dusky Duck, Black Duck.* An uncommon migrant with the mallard. Occasionally nests in the Calumet marshes. (*Nelson.*)

248. DAFILA ACUTA. (L.) *Pintail Duck.* Spring and fall migrant; abundant.

CHAULELASMUS STREPERUS. Gray. *Gadwall.* Common migrant and rare summer resident. (*Nelson.*)

249. MARECA PENELOPE. Selby. *European Widgeon.* Exceedingly rare straggler. One shot on the Calumet marshes, April, 1876. (*Nelson.*)

250. MARECA AMERICANA. Steph. *American Widgeon.* Common spring and fall migrant; some remain to breed north. (*Nelson.*)

251. QUERQUEDULA CAROLINENSIS. Gm. *Green-winged Teal.* Common migrant; breeds sparingly in the Calumet marshes. (*Nelson.*)

252. QUERQUEDULA DISCORS. Steph. *Blue-winged Teal.* Migrant, and summer resident in suitable localities; breeds in Calumet marshes. (*Nelson.*)

253. SPATULA CLYPEATA. Linn. *Spoon-bill Duck.* Spring and fall migrant; breeds in the same localities as the above.

254. AIX SPONSA. Boie. *Wood Duck. Summer Duck.* Common spring and fall migrant and summer resident; breeds throughout the State. Our most beautiful duck.

155. FULIGULA MARILA. Steph. *Greater Scaup Duck.* A rare migrant.

256. FULIGULA AFFINIS. Eyton. *Lesser Soup Duck.* Very abundant migrant. Some remain about Lake Michigan through the year, if the winter is mild.

257. FULIGULA COLLARIS. Don. *Ring Neck Duck.* Abundant migrant. Breeds north. (*Nelson.*)

258. FULIGULA FERINA. Sw. Var. AMERICANA. Coues. Common migrant.

FULIGULA VALLISNERIA. Steph. *Canvas-back Duck.* Common migrant with the preceding. Like others of this genus, takes to open water rather than to the marshes.

259. BUCEPHALA CLANGULA. Gray. *Golden Eye Duck.* Common migrant. Resident through the winter on Lake Michigan. (*Nelson.*)

260. BUCEPHALA ISLANDICA. Bd. *Barrow's Golden Eye.* Winter resident on Lake Michigan.

261. BUCEPHALA ALBEOLA. *Butter Ball Dipper.* Most abundant of the genus. Migrant Winter resident on the lake. (*Nelson.*)

262. HARELDA GLACIALIS. Leach. *Old Wife Duck.* Rare winter resident on Lake Michigan. (*Nelson.*)

263. SOMATERIA MOLLISSIMA. Leach. *Eider Duck.* Winter resident on Lake Michigan. Not uncommon. The king eider *S. spectabilis*, may occur on the lake as far south as Michigan City.

264. ŒDEMIA AMERICANA. Sw. *Black Scoter.* Winter resident on the lake.

265. ŒDEMIA FUSCA. Sw. *Velvet Scoter.* Lake winter resident, and further south.

266. ŒDEMIA PERSPICILLATA. Steph. *Surf Duck, Sea Coot.* Winter resident on the lake, and in Illinois as far south as Mt. Carmel. (*Nelson.*)

277. ERISMATURA RUBIDA. Bon. *Ruddy Duck.* Migrant and summer resident; breeds. (*Nelson.*)

278. MERGUS MERGANSER. L. *Goosander.* Common migrant; also known as *Fish Duck* and *Sheldrake.*

279. MERGUS SERRATOR. L. *Red-Breasted Merganser.* Very rare winter resident. (*Nelson.*)

280. MERGUS CUCULLATUS. L. *Hooded Merganser.* Abundant migrant; common winter resident on Lake Michigan; breeds sparingly. (*Nelson.*)

ORDER J. STEGANOPODES.

(*The Totipalmate Birds.*)

FAMILY PELECANIDÆ. The Pelicans.

281. PELECANUS TRACHYRHYNCHUS. Loth. *White Pelican.* An occasional migrant.

FAMILY PHALACROCORACIDÆ. Cormorants.

282. GRACULUS DILOPHUS. Var. *Dilophus.* Sw.

283. GRACULUS DILOPHUS. Var. *Floridanus.* Coues. The former is a rather uncommon migrant; the latter is a regular summer resident in Southern Illinois and as likely to occur in Indiana.

ORDER K. LONGIPENNES.

(*The Long-Winged Swimmers.*)

FAMILY LARIDÆ. The Gulls.

284. STERCORARIUS POMATORHINUS. V. *Pomarine Jaeger.* A rare winter visitant to Lake Michigan. October 9, 1876, in company with my friend, Mr. E. W. Nelson (whose list and complete notes on the birds of Northeastern Illinois is taken as the basis of this list for Northern Indiana), we saw a fine specimen of this bird flying along the lake shore near the State line.

285. LARUS GLAUCUS. Brün. *Glaucous Gull.* Rare winter visitant to Lake Michigan.

286. LARUS LEUCOPTERUS. Faber. *White-winged Gull.* Not uncommon winter resident on Lake Michigan.

287. LARUS MARINUS. L. *Great Black-backed Gull.* Winter resident on Lake Michigan. Also seen on the Ohio. (*Langdon.*)

288. LARUS ARGENTATUS. Var. ARGENTATUS. Brün. *European Herring Gull.* Very rare winter visitant to Lake Michigan. One adult female taken in Chicago harbor, March, 1876.

289. LARUS ARGENTATUS. Var. SMITHSONIANUS. Coues. *American Herring Gull.* Abundant winter resident on the lake, and occurs throughout the State.

290. LARUS DELAWARENSIS. *Ring-billed Gull.* Migrant along the lake and on the Ohio.

291. LARUS ATRICILLA. L. *Laughing Gull.* Summer visitant. (*Ridgway.*)

292. LARUS PHILADELPHIA. Coues. *Bonaparte's Gull.* Exceedingly abundant migrant through the State.

293. XEMA SABINEI. Leach. *Fork-Tailed Gull.* Very rare visitant to Lake Michigan. (*Nelson.*)

294. STERNA ANGLICA. Mont. *Gull-Billed Tern.* Rare visitant during summer. (*Nelson.*)

295. STERNA CASPIA. Pall. *Caspian Tern.* Visitant during the migrations. Dr. Bannister has observed it at Evanston, Ill., often in winter.

296. STERNA HIRUNDO. L. *Wilson's Tern.* Abundant migrant about the lake.

297. STERNA FORSTERI. Nutt. *Forster's Tern.* With the above. Also summer resident, breeding in small reedy lakes. (*Nelson.*)

298. STERNA SUPERCILIARIS. V. *Least Tern.* A rare summer visitant. Specimen in Chicago Academy of Sciences from Calumet marshes.

299. HYDROCHELIDON LARIFORMIS. *Short-Tailed Tern, Black Tern.* Abundant summer resident in large marshes and prairie sloughs.

ORDER L. PYGOPODES.

(*The Diving Birds.*)

FAMILY COLYMBIDÆ. The Loons.

300. COLYMBUS TORQUATUS. Brün. *Loon, Great Northern Diver.* Migrant. Winter resident on the lake. Several have been taken from White river at Washington street bridge, Indianapolis.

301. COLYMBUS SEPTENTRIONALIS. L. *Red-Throated Loon.* Migrant. Common winter resident upon Lake Michigan from late fall to early spring.

FAMILY PODICIPIDÆ. The Grebes.

302. PODICEPS CRISTATUS. L. *Crested Grebe.* "North America a large." (*Coues.*) On Lake Michigan in winter. (*Nelson.*)

303. PODICEPS GRISEIGENA. Var. *HOLBOLLI.* Coues. *Red-Necked Grebe.* Uncommon winter resident upon Lake Michigan. (*Nelson.*)

304. PODICEPS CORNUTUS. Loth. *Horned Grebe.* More abundant than either of the two above. Breeds sparingly in the small lakes. (*Nelson.*)

305. PODICEPS AURITUS. L. Var. CALIFORNICUS. Coues. *Eared Grebe.* In winter on Lake Michigan; several species of grebes and a number of ducks are occasionally taken during the winter upon the hooks set several miles off shore by the fishermen.

306. PODILYMBUS PODICEPS. (L.) *Carolina Grebe.* Very common summer resident from April to November. Nests along the borders of reedy sloughs, marshes and rivers. (*Nelson.*) Also known as the Hell Diver, Water-Witch and Pied-bill Grebe.

ADDITIONAL LIST.

LIST OF SPECIES WHICH BREED IN NORTH-WESTERN INDIANA.

Those marked with the degree (°) are also given in Mr. Frank W. Langdon's "Catalogue of the Birds of the Vicinity of Cincinnati," and form substantially a list of the Birds of South-eastern Indiana.

°1. Turdus mustelinus.
°2. " fuscescens.
°3. " swainsoni.
°4. " migratorius.
°5. Harporhynchus rufus.
°6. Mimus polyglottus.
°7. Galeoscoptes carolinensis.
°8. Sialia sialis.
°9. Polioptila cærulea.
°10. Parus atricapillus.
°11. Sitta carolinensis.
°12. " canadensis.
°13. Thryothorus ludovicianus.
°14. " bewickii.
°15. Troglodytes aedon.
°16. Cistothorus stellaris.
°17. " palustris.
°18. Mniotilta varia.
°19. Helminthophaga chrysoptera.
°20. " ruficapilla.
°21. Parula americana.
°22. Dendrœca æstiva.
°23. " cærulea.
°24. " pennsylvanica.
°25. " virens.
°26. " pinus.
°27. Seiurus aurocapillus.
°28. " noveboracensis.
°29. " ludovicianus.
°30. Geothlypis trichas.
°31. Myiodioctes mitratus.
°32. " canadensis.
°33. Setophaga ruticilla.
°34. Progne subis.
°35. Petrochelidon lunifrons.
°36. Hirundo horreorum.
°37. " bicolor.
°38. Stelgidopteryx serripennis?
°39. Cotyle riparia.
°40. Vireo olivaceus.
°41. " philadelphicus.
°42. " gilvus.
°43. " flavifrons.
°44. " noveboracensis.
45. " belli.
°46. Ampelis cedrorum.
°47. Collurio borealis??
°48. " ludovicianus.
°49. " *var.* excubitoroides.
°50. Pyranga rubra.
°51. Carpodacus pupureus.
°52. Chrysomitris tristis.
°53. " pinus.
°54. Passer domestica.
°55. Passerculus savanna.
°56. Pocœcetes gramineus.
°57. Ammodromus henslowi.
°58. " passerinus.
59. " *var.* nelsoni.
°60. Chondestes grammaca.
°61. Zonotrichia albicollis.
°62. Spizella pusilla.
°63. " socialis.
°64. " pallida.
°65. Melospiza melodiea.
°66. " lincolni.
°67. " palustris.
°68. Euspiza americana.
°69. Goniaphea ludovicianus.
°70. Cyanospiza cyanea.
°71. Cardinalis virginianus.
°72. Pipilo erythrophthalmus.
°73. Eremophila alpestris.
°74. Dolichonyx oryzivorus.

°75. Molothrus ater.
°76. Agelæus phœniceus.
77. Zantho. icterocephalus.
°78. Sturnella magna.
79. " *var.* neglecta.
°80. Icterus spurius.
°81. " baltimore.
°82. Quiscalus *var.* ænæus.
°83. Corvus americanus.
°84. Cyanurus cristatus.
°85. Tyrannus carolinensis.
°86. Myiarchus crinitus.
°87. Sayornis fuscus.
°88. Contopus borealis?
°89. " virens.
°90. Empidonax *var.* trailli.
°91. " minimus.
°92. " acadicus.
°93. " flaviventris.
°94. Ceryle alcyon.
°95. Chordeiles popetue.
96. " *var.* henryi.
°97. Antrostomus vociferus.
°98. Chætura pelagica.
°99. Trochilus colubris.
°100. Coccygus americanus.
°101. " erythrophthalmus.
°102. Picus villosus.
°103. Picus pubescens.
°104. Centurus carolinus.
°105. Melanerpes erythrocephalus.
°106. Colaptes auratus.
°107. Otus *var.* wilsonianus.
108. " brachyotus.
°109. Nyctale acadica?
°110. Scops asio.
°111. Bubo virginianus.
°112. Falco communis.
°113. " *var.* columbarius.
°114. " sparverius.
°115. Circus *var.* hudsonius?
°116. Nisus fuscus.
°117. " cooperi.
°118. Buteo pennsylvanica.
119. " swainsoni.
°120. " lineatus.
°121. " borealis.
°122. Aquila *var.* canadensis.
°123. Haliætus leucocephalus.
°124. Ectopistes migratorius.
°125. Zenædura carolinensis.
126. Pediœcetes phasianellus.
°127. Cupidonia cupido.
°128. Bonasa umbellus.
°129. Ortyx virginianus.
°130. Squatarola helvetica.
°131. Ægialitis vociferus.
°132. " semipalmatus.
°133. " melodus.
°134. Steganopus wilsoni.
°135. Philohela minor.
°136. Gallinago wilsoni.
°137. Tringa minutilla.
°138. " maculata.
°139. Totanus semipalmatus.
°140. " melanoleucus.
°141. " flavipes.
°142. Totanus solitarius.
°143. Tringoides macularius.
°144. Actiturus bartramius.
°145. Numenius longirostris.
°146. Ardea herodias.
°147. " egretta.
°148. " virescens.
°149. Nyctiardea *var.* nævia.
°150. Botaurus minor.
°151. Ardetta exilis.
°152. Grus americanus.
°153 " canadensis.
°154. Rallus elegans.
°155. " virginianus.
°156. " carolina.
°157. " noveboracensis.
°158. " jamaicensis.
°159. Gallinula galeata.
°160. Fulica americana.
°161. Branta canadensis.
°162. Anas boschas.
°163. " obscura.
°164. Dafila acuta.
°165. Chaulelasmus streperus.
°166. Mareca americana.
°167. Querquedula carolinensis.
°168. " discors.
°169. Spatula clypeata.
°170. Aix sponsa.
°171. Fulix affinis.
°172. " collaris.

○ 173. Erismatura rubida.
○ 174. Mergus serrator,
○ 175. " cucullatus.
○ 176. Sterna forsteri.
○ 177. Hydrochelidon lariformis.
○ 178. Colymbus torquatus.
○ 179. Podiceps cornutus.
○ 180. Podilymbus podiceps.

SPECIES WHICH OCCUR IN SUMMER, BUT ARE NOT KNOWN TO BREED.

○ 1. Protonotaria citrea.
○ 2. Helmitherus vermivorus.
3. Dendrœca *var.* albilora.
○ 4. " discolor.
○ 5. Oporornis formosus.
○ 6. Pyranga œstiva.
○ 6*a*. Hylotomus pileatus.
○ 7. Conurus carolinensis.
○ 8. Strix *var.* pratincola.
○ 9. Syrnium nebulosum.
○ 10. Nauclerus forficatus.
11. Buteo *var.* calurus.
○ 12. Rhynogryphus aura.
○ 13. Meleagris gallopavo.
○ 14. Ereunetes pusillus,
○ 14*a*. Tantalus loculator.
○ 15. Ardea candidissima.
○ 16. Porphyrio martinica.
○ 17. Graculus *var.* floridanus.
○ 18. Larus *var.* smithsonianus.
○ 19. " delawarensis.
○ 20. " atricilla?
○ 21. " philadelphia.
○ 22. Sterna anglica.
23. " regia.
○ 24. " superciliaris.

SPECIES WHICH OCCUR ONLY DURING THE MIGRATIONS.

○ 1. Turdus aliciæ.
○ 2. " pallasi.
○ 3. Sialia arctica.
○ 4. Regulus satrapa.
○ 5. " calendula.
6. Troglodytes *var.* hyemalis.
○ 7. Anthus ludovicianus.
○ 8. Helminthopaga celata.
○ 9. " peregrina.
10. Perissoglossa tigrina.
○ 11. Dendrœca coronata.
○ 12. " maculosa.
○ 13. " blackburniœ.
○ 14. " striata.
○ 15. " castanea.
○ 16. " cærulescens.
○ 17. " palmarum.
○ 18. Oporornis agilis.
○ 19. Geothlypis philadelphia.
○ 20. Myiodioctes pusillus.
○ 21. Vireo solitarius.
22. Ammodromus lecontei.
○ 23. Zonotrichia leucophrys.
24. " *var.* intermedia.
25. " coronata.
26. " querula.
○ 27. Junco hyemalis.
○ 28. Passerella iliaca.
○ 29. Scolecophagus ferrugineus.
30. " eyanocephalus.
31. Sayornis sayus.
○ 32. Sphyropicus varius.
○ 33. Pandion *var.* carolinensis.
○ 34. Charadrius fulvus *var.* virginicus.
○ 35. Strepsilas interpres.
○ 36. Recurvirostra americana.
○ 37. Himantopus nigricollis.
○ 37. Lobipes hyperboreus.
○ 39. Phalaropus fulicarius.
○ 40. Macrorhamphus griseus.
○ 41. Micropalma himantopus.
○ 42. Tringa bairdii.
○ 43. " bonapartei.
44. " maritima.
○ 45. " *var.* americana.
○ 46. " canutus.
○ 47. Calidris arenaria.
○ 48. Limosa fêdoa.
○ 49. " hudsonica.
○ 50. Tringites rufescens.
○ 51. Numenius hudsonicus.
○ 52. " borealis.
○ 53. Ibis falcinellus.
○ 54. Cygnus buccinator.
○ 55. " americanus.
○ 56. Anser *var.* gambeli.

○57. Anser *var.* cærulescens.
○58. " hyperboreus.
59. " *var.* albatrus.
○60. Branta bernicla.
○61. " canadensis *var.* hutchinsi.
62. Mareca penelope.
○63. Fuligula marila.
○64. Fuligula vallisneria.
○65. " *var.* americana.
○66. Pelecanus trachyrhynchus.
○67. Graculus dilophus.
68. Xema sabinei.
○69. Sterna hirundo.

LIST OF WINTER VISITANTS AND RESIDENTS.

○1. Myiadestes townsendi.
○2. Lophopanes bicolor.
3. Parus hudsonicus.
○4. Certhia familiaris.
5. Ampelis garrulus.
○6. Collurio borealis.
7. Hesperiphona vespertina.
8. Pinicola enucleator.
○8*a*. Carpodacus pupureus.
○9. Chrysomitris tristis.
○10. Chrysomitris pinus.
○11. Loxia leucoptera.
○12. " americana.
○13. Ægiothus linarius.
14. " canescens.
○15. Plectrophanes nivalis.
○16. " lapponicus.
17. " pictus.
○18. Pyrgita domestica.
○19. Junco hyemalis.
○20. Spizella monticola.
○21. Eremophila alpestris.
○22. Corvus *var.* carnicorus.
○23. " americanus.
24. Pica *var.* hudsonica.
○25. Cyanura cristata.
26. Perisoreus canadensis.
○27. Picus villosus.
○28. " pubescens.
○29. Picoides areticus.
○30. Melanerpes erythrocephalus.
○31. Strix flammea.
○32. Otus *var.* wilsonianas.
○33. " brachyotus.
34. Syrinum cinereum.
○35. Scops asio.
○36. Bubo virginianus.
○37. Nyctea *var.* arctica.
○38. Surnia *var.* hudsonica.
○39. Astur *var.* atricapillus.
○40. Buteo borealis.
○41. Aquila canadensis.
○42. Haliætus leucocephalus.
43. Pedicœcetes phasianellus.
○44. Cupidonia cupido.
○45. Bonasa umbellus.
○46. Lagopus albus.
○47. Ortyx virginianus.
○48. Fuligula marila.
○49. Fuligula affinis.
○50. " collaris.
○51. Bucephala clangula.
52. " islandica.
○53. " albeola.
54. Harelda glacialis.
55. Histrionicus torquatus.
56. Somateria mollissima.
57. " spectabilis.
58. Œdemia americana.
59. " fusca.
60. " perspicillata.
○61. Mergus merganser.
○62. " serrator.
○63. " cucullatus.
64. Stercorarius pomatorhinus.
65. Larus glaucus.
66. " leucopterus.
○67. " marinus.
○68. " argentatus.
69. " tridactylus.
70. Sterna caspia.
○71. Colymbus torquatus.
○72. " septentrionalis.
73. " arcticus.
○74. Podiceps cristatus.
75. " *var.* holbolli.
76. " *var.* californicus.

SPECIES OCCURRING IN THE VICINITY OF MT. CARMEL, ILL., (GIBSON COUNTY, IND.), RECORDED BY MR. NELSON, AND NOT GIVEN IN THE ABOVE LISTS.

1. Peucæa æstivalis Cab. Bachman's Finch. "Rather common about fences and brush heaps."

2. Ictinia mississippiensis Gray. Miss. Kite. "Rare—in company with Turkey Buzzards."

3. Elanus glaucus Coues. Black-shouldered Kite. "One Pair." *Ridgway.*

4. Nycterodius violaceus (L.) Yellow-crowned Night Heron.

INDEX TO NAMES

OF

GENERA AND HIGHER GROUPS,

WITH THEIR DERIVATIONS.

NOTE.—In this index, names of genera are printed in ordinary type, as Dendrœca; families and higher groups in italics, as *Emydidæ*. In giving the etymology of terms, all words not otherwise designated are understood to be Greek; L. indicates Latin. Greek words are here, for convenience, printed in Roman characters.

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GLOSSARY

OF

SPECIFIC NAMES.

The following Glossary includes most of the specific names here mentioned, with the exception of words formed from names of persons. They are of Latin origin, unless otherwise specified:

acadiacus: Acadian.
aedon: Gr. a nightingale.
æstivus: summer.
affinis: akin to.
agilis: agile.
albeolus: whitish.
albicollis: white-throated.
albus: white.
alcyon: halcyon—a sea bird—during whose nesting there is always a calm.
alpestris: alpine.
americanus: American.
anglicus: English.
arcticus: arctic.
ardens: burning.
arenarius: living in sand.
argentatus: silvered.
asio: a horned owl.
ater: black.
atricapillus: black-capped.
aura: pertaining to air.
auricapillus: golden-crowned.
baltimore: to Lord Baltimore, in sportive allusion to his black coat and scarlet vest.
bernicla: a barnacle-goose.
bicolor: two-colored.
borealis: northern.
boschas: a kind of duck.
brachyotus: Gr. short-eared.
calendulus: Gr. beautiful-finned.
canadensis: Canadian.
candidissimus: most white.
carolinesis: Carolinian.
caspus: Caspian.
castaneus: chestnut-colored.
caudacutus: sharp-tailed.
cedrorum: living among cedars.
celatus: concealed.
chrysaetus: Gr. golden eagle.
chrysopterus: Gr. golden-winged.
citræus: citron-colored.
clangula: a sharp bird's-scream.
clypeata: shielded.
collaris: collared.
colubris: pertaining to a snake.
columbianus: pertaining to a dove.
coenutus: horned.
coronatus: crowned.
crinitus: long-haired.
cristatus: crested.
cucullatus: hooded.
cupido: Cupid.
cyanocephalus: Gr. blue-headed.
dilophus: Gr. two-crested.
discolor: two-colored.
domesticus: domestic.
dominicus: from San Domingo.
egretta: Italian—an Egret.
elegans: elegant.
enucleator: one who takes the seed from the husk.
erythropthalmus: Gr. red-eyed.
excubitoroides: like excubitor—a sentinel.
familiaris: familiar.

ferrugineus: rust-colored.
flavifrons: yellow-fronted.
flavipes: yellow-footed.
flavirostris: yellow-billed.
flaviventris: yellow-bellied.
forficatus: deeply forked.
formosus: comely.
fulicarius: like a coot.
fulvus: reddish-yellow.
fuscescens: somewhat dusky or tawny.
fuscus: dusky.
galeatus: helmeted.
gallopavo: *Gallus*, a cock; *Pavo*, a peacock.
garrulus; garrulous.
gilvus: pale yellow.
glacialis: icy.
gladius: a sword.
glaucus: glaucous.
grammacus: Gr. striped.
gramineus: pertaining to grass.
griseus: gray.
hallaetus: Gr. a sea-eagle.
helveticus: Swiss.
himantopus: Gr. crook-shanks.
hirundo: a swallow.
horreorum: inhabiting barns.
hudsonius: Hudsonian.
hyemalis: wintry.
iliacus: Trojan.
intermedius: intermediate.
interpres: an interpreter.
islandicus: Iceland.
jamaicensis: Jamaican.
lapponicus: pertaining to Lapland.
lariformis: shape of a gull.
leucocephalus: Gr. white-throated.
leucopterus: Gr. white-finned.
loculator: a big-talker.
longirostris: long-snouted.
ludovicianus: Louisianian.
lunifrons: crescent forehead.
macularius: spotty.
maculosus: spotted.
majalis: pertaining to May.
martimus: maritime.
martinicus: from Martinique.
meleagris: a fowl.
melodius: melodious.
merganser: diving-goose.
minimus: smallest.
minor: smaller.
minutillus: minute.
mississippiensis: Mississippian.
mollissimus: softest.
monticolus: living in the mountains.
mugitans: mooing, like a cow.
mustelinus: color of a weasel (foxy red.)
nævius: with small spots.
nebulosus: cloudy.
niger: black.
noctivgans: wandering at night.
noveboracensis: New York.
obscurus: dusky.
olivaceus: olivaceous.
oryzivorus: rice-eating.
palmarum: living among palm trees.
pallidus: pale.
palumbarius: pertaining to pigeons.
palustris: living among swamps.
pelagicus: oceanic.
penelope: a widgeon; also, the wife of Ulysses.
pennsylvanicus: Pennsylvanian.
perspicillatus: transient.
phasiaellus: a little pheasant.
philadelphia: Gr. brotherly love.
philadelphica: Philadelphian.
phœniceus: crimson.
pictus: painted.
pileatus: capped; crested.
pinus: pine tree.
pomatorhinus: Gr. snout operculate.
podiceps: a grebe.
procne: Gr. a swallow.
pubescens: pubescent.
purpureus: purple.
pusillus: weak.
querulus: querulous.
regius: royal.
riparius: pertaining to shores.
ruber: red.
ruficapillus: rusty-crowned.
rufus: rusty-red.
ruticilla: somewhat fiery red.
savanna: Savanna.
scandiacus: ascending (or Scandinavian?)

semipalmatus: semipalmate.
septentrionalis: northern.
serrator: one that saws.
serripinnis: saw-finned.
sialis: plump.
socialis: sociable.
solitarius: solitary.
sparverius: pertaining to a sparrow.
spatula: a spatula.
spectabilis: notably handsome.
spurius: spurious.
stellaris: starry.
streperus: noisy.
subis: sudden.
sylvaticus: living in the woods.
torquatus: with a collar.
trachyrhynchus: Gr. rough-billed.
trichas: Gr. a kind of thrush.
tridactylus: three-clawed.
tristis: sorrowful.
troglodytes: a wren.
tyrannus: a king-bird.
umbellus: ruffed.
variatus: variegated.
villosus: hairy.
virescens: greenish.
virens: green.
virginianus; Virginian.
vociferus: loud-voiced.

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